

American **FORESTS**



JUNE 1934



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"Flowering Dogwood"

By Walter D. Wilcox

AMERICAN FORESTS

OID BUTLER, Editor

L. M. CROMELIN and ERLE KAUFFMAN, Assistant Editors

Vol. 40

JUNE, 1934

No. 6

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Photograph by L. H. Fletemeyer

"Departing Day"

Taken near LaFayette, Indiana



*"The summer day burns low, her embers fade and die,
While fire-flies, under listless trees, prick lights against the sky."*

—JOHN PHELPS.

Honorable Mention—National Competition Conducted by
The American Forestry Association
for
Beautiful Photographs of Trees in America

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THE WAR ON WINGED PREDATORS?

By WILLIAM VOGT

Photographs by the National Association of Audubon Societies

NEVER probably in the history of the world, has there been a popular campaign of extermination waged against any group of animals comparable to the war now being carried on against the predatory birds of the United States. Various forms of life have in the past been attacked and wiped out. This destruction has been, however, usually of a sporadic and often unintentional nature. The phenomenon of millions of citizens of a nation bending almost daily effort and thought toward the destruction of a group of native wild creatures is, so far as we know, without precedent. The situation is fraught with the gravest significance because it represents a popular rebellion against and contempt for the reasoned testimony of virtually all disinterested investigators that have studied the life-histories and the economic and biological relationships of these birds.

There are, we are told, 7,000,000 licensed hunters in the United States. To this number can be added, certainly, many thousands of farm boys and backwoodsmen not included in the tally. There can be no doubt that the hands of the vast majority of this great standing army are set against our hawks and owls—"vermin" in the hunter's parlance. To a lesser degree, their enmity is directed against herons, kingfishers, pelicans—any bird whose diet is assumed to include forms killed by men in the name of sport. We have even heard a fantastic tale of phoebes that were shot because it was thought they were eating trout fry.

Whether or not this was true, we have only to turn to sportsmen's magazines, to find, constantly reiterated, the

thought that, "The only good predator is the dead one."

The macabre effectiveness of this campaign is attested by letters from many parts of the country, describing the disappearance of hawks and owls. They are among the rarest of birds in the region with which the writer is most familiar, but one can not judge the status of a wide-ranging species from a few localities; in this case, such snap judgment is not necessary. From the Pacific to the Atlantic correspondents tell of sharp reductions in the normal populations of these birds. There is no defense on

any score for this campaign of destruction. This assertion is made categorically and without hesitation. It is not made entirely on the writer's responsibility. There are too many witnesses, from Dr. A. K. Fisher to Herbert L. Stoddard and Dr. S. Prentiss Baldwin, to justify equivocation on this score. Paul L. Erington, studying the effect on bob-white of hawks and owls, presents particularly illuminating data. Not even from the selfish point of view of the sportsman is there any excuse for the destruction of these birds—a point to which we shall return later.

From the farmer's angle, almost all hawks and owls in the United States—sixty-seven out of seventy-three species—have been called either harmless or beneficial.

A classical comment on the relation of hawks and owls to the farmer was given nearly fifty years ago by Dr. C. Hart Merriam, in commenting on a bounty "for the benefit of agriculture" paid for dead hawks and owls, mink and weasels, by the State of Pennsylvania.

"By virtue of this act," said Dr. Merriam, "\$90,000 has



In man's relentless conflict with Nature, various forms of wildlife have, in the past, been wiped out. Shall we suffer a repetition of this in the needless loss of our winged predators, which investigation has proved to be of high economic value? These are screech-owls, photographed by O. E. Baynard.



A young Duck Hawk photographed at the nest site on Sugarloaf Mountain in Massachusetts by Herbert K. Job.

been paid in bounties. . . . This represents the destruction of at least 128,571 of the above mentioned animals, most of which were hawks and owls.

"Granting that 5,000 chickens are killed annually in Pennsylvania by hawks and owls, and that they are worth twenty-five cents each (a liberal estimate in view of the fact that a large proportion of them are killed when very young), the total loss would be \$1,250, and the poultry killed in a year and a half . . . would be worth \$1,875. Hence it appears that during the past eighteen months the State of Pennsylvania expended \$90,000 to save its farmers a loss of \$1,875. But this estimate by no means represents the actual loss to the farmer and taxpayer of the State. It is within bounds to say that within the course of a year every hawk and owl destroys at least a thousand mice or their equivalent in insects, and each mouse or its equivalent so destroyed would cause the loss of at least two cents per annum. Therefore, omitting all reference to the enormous increase in the numbers of these animals when Nature's means of holding them in check has been removed, the lowest possible estimate of the value to the farmer of each hawk and owl and weasel would be twenty dollars a year or thirty dollars in a year and a half.

"Hence, in addition to the \$90,000 actually expended by the state in destroying 128,571 of its benefactors, it has incurred a loss to its agricultural interests of at least \$3,857,130, or a total loss of \$3,947,130 in a year and a half, which is at the rate of \$2,631,420 per annum. In other words, the state has thrown away \$2,105 for every dollar saved! And even this does not represent fairly the full loss, for the slaughter of such a vast number of predaceous birds and mammals is almost certain to be followed by a correspondingly enormous increase in the num-

bers of mice and insects formerly held in check by them, and it will take many years to restore the balance thus blindly destroyed through ignorance of the economic relations of our common birds and mammals."

Ordinarily, nowadays, such bounties are not offered for the "benefit" of agriculture. They are offered for the "benefit" of sport and they continue to be offered by the State of Pennsylvania. It is true that the vermin for which bounties are paid is a little more circumspectly chosen; this has small effect, however, because most sportsmen will not take the trouble to find out what they are killing, until after the bird is dead. Of 503 "goshawks" offered for bounty in Pennsylvania, only seventy-six were actually of this species.

There has been widely syndicated within the past few months, the photograph of a Mr. Wilcox, of Arkansas, who during "the last seven years has killed 5,000 hawks" on his so-called duck sanctuary. Mr. Wilcox proudly displays the carcass of a red-tailed hawk, of which Dr. Fisher wrote, "It has been demonstrated by careful stomach examination that poultry and game birds do not constitute more than ten per cent of the food of this hawk." The huge debt Mr. Wilcox owes his farmer neighbors can easily be computed on the basis of Dr. Merriam's figures.

The evidence of such scientists as Merriam, Fisher, Stoddard, and many others, is not the result of hearsay; it is arrived at only after the most painstaking study of live birds, as well as of the stomach contents of dead ones. If space were available, evidence for the hawk and owl from the point of view of the agriculturist could be extended for many pages.

Another great class of interested persons that until comparatively recently has been almost completely ignored by



Most of the predatory birds, says the author, are beneficial in their feeding habits. Witness the Sparrow Hawk, boon to farmers, which feeds chiefly on insects.

conservation departments is the men and women, boys and girls, who go into the forests, fields, swamps, or marshes, for no other purpose than to enjoy them. This enjoyment may take various forms—esthetic, scientific, athletic. Perhaps it is merely solitude and rest that are sought after the dullness and strain of life in modern cities.

The writer is placed in a peculiarly favorable place for observing the reactions of these non-killers. A considerable proportion of his time is filled by answering their questions and taking them closer to the out-of-doors that to them is a mystery of never failing enthrallment. Time and again, as we have watched a marsh hawk thrusting fiercely downward toward some luckless meadow mouse, or a sparrow hawk hovering daintily above a grasshopper, or a duck hawk trying to cut from a flock of "peep" a lone sandpiper, there have leaped to mind Elizabeth Coatsworth's lines:

"Hawks stir the blood like fiercely
ringing bells
Or far off bugles . . ."

Invariably these people are thrilled. Their eyes light up. Their blood moves faster. They have seen, for an instant, life at its quickest! We have seen a group of thirty men and women, wordless and all but breathless, during five full minutes of a falcon's pursuit of a flock of

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Artistic in its forest frame, this osprey's nest is built high on a dead stub in the Maine woods.



An unusual shot of the Great Horned Owl, glaring balefully from the nest.



The nest of the King of birds — the Bald Eagle — photographed in Florida by O. E. Baynard.

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discrimination; that the sportsman has no more stake in the nation's wildlife than has the farmer and the camper, hiker and picnicker. If the sportsman retorts, as he usually does, "I pay the freight!" the answer is obvious; why shouldn't he, since he—as part of an armed force of 7,000,000 men and women—is the greatest destructive force encountered by our game?

But if wildlife is managed and made to produce an annual crop above and beyond the perpetuation needs of the species, it would be arrogantly selfish to say the sportsman has no right to the surplus. With this point conceded (and it is, unhappily, more than many sportsmen will concede the non-hunter) what should be the relations of the hunter toward the predatory bird, (Continuing on page 284)

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It is not suggested here that hunting should be abolished. The sport is conceded to be of value, both economically and recreationally. It is merely suggested that management of our wildlife for sportsmen alone is the crassest sort of class-



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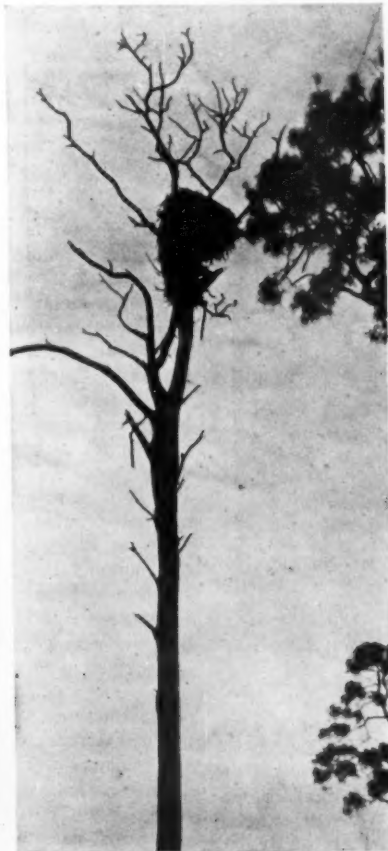
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Hike to your heart's content — follow the gypsy trail to health and happiness.

CENTURIES from now historians will probably refer to us as a race of "button pushers." We are! And, on second thought, it would seem that the indispensable automobile has encouraged the tendency to do things effortlessly. However, we are to be excused and even smiled upon.

But our trying to duplicate the doodle bug's performance of remaining entirely motionless for hours at a "sitting" has added another ailment to the terrifyingly long list to which flesh is heir; and while Webster doesn't define it, nevertheless it is existent. This new-comer has been christened "Automobilitis," and it has a habit of pouncing upon people who ride too much and exercise too little. As one might suspect, it deals the hardest blow upon those who hold down swivel-chair jobs. Which brings us to a case in point.

Burns, the banker, who lives only a few doors from me, had reached the secondary stage of the "disease" when he was jarred to consciousness: the threads of his life were giving way one by one. The "slipping" process had been working so slowly and insidiously that he was utterly unaware of it; but to his physician the facts stood out in bold relief. His heart functioned like a rust-laden pump; his

HIGHWAYS TO HEALTH

By

GLENN YERK WILLIAMSON



blood-pressure touched levels far above normal; his muscles were flabby and toneless; and his waist-line (perhaps I should call it "waste!") increased at an alarming rate.

The physician knew that his client literally lived on four wheels; knew that while he had covered thousands upon thousands of miles he had, paradoxically, acquired the sobriquet "Mr. Stay-at-home." A heart-to-heart talk took place between the two, with the result that when Burns went home one evening he carried with him the realization that a sedentary occupation was bad enough for one's health, but to take up a diversion where physical exertion was no more strenuous than shifting gears and pressing down upon an accelerator was akin to suicide. That realization, arriving none too soon, touched the fuse that caused an explosion in the banker's life. He resolved then and there to be more sensible in burning gasoline. And the upshot of the whole thing was that he embarked upon what he laughingly termed his "five-year plan."

Every summer, for the past five years, he has gathered his family together for an honest-to-goodness vacation. To the silent mountains, to the sun-baked desert, to the breeze-touched seashore, to the cool, fragrant woods—wherever Uncle Sam's glorious recreational enticements hide—he has hurried with the wholesome zest of a school boy "storming out to play." And this yearly answer to the call of the Red Gods, the yearly submission to the urge "to go and see and go and see and go and see some more," has not only brought vibrant health to this man and his family but has kept them healthily alive to their very finger tips. But the banker, eager to go into his health-building activities on a one hundred per cent basis, has, in addition to his motorized vacation program, gone a step farther by availing himself of every opportunity to live *al fresco*. He is not to be hampered by seasonal restrictions! On Sundays and holidays he dons his oldest clothes, prepares a lunch for himself (in case his wife refuses to accompany him!), picks out some inviting and hidden spot off the beaten path, and away he goes. "Roughin' it" has given him a genuine buoyancy of heart and a new lease on life. I know that he is younger today than he was five years ago.

Is Burns different from the rest of humanity in the way he makes use of his automobile? Statistics can answer that. According to figures compiled by the government over 3,000,000 vacationists are now visiting the National Parks and over 8,000,000 the National Forests each year. Think of it! Add to this figure the number of people who swarm

to state parks and forests (estimated at 50,000,000 by the National Conference on State Parks) and you get a pretty good idea of the manner in which our splendid highways are being utilized. What is the reason for this "mania" for traveling? As a matter of fact, we are concerned not with the reason but the reasons. Let's deal with them individually.

We have over twenty-four National Parks that in totality cover an area in excess of 8,000,000 acres, vast scenic playgrounds set apart by Congress "for the use and enjoyment of the people for all time." We have about 145 National Forests that offer almost unlimited inducements to the nature-bent individual who itches to get away from civilization's restraining influences. We have, aside from these Federal domains, in the neighborhood of 7,000,000 acres of state-owned forests or parks where one finds no inhospitable "Keep off the Grass" signs. We have well over 3,000,000 miles of highways, a system that on an immense scale resembles the delicate tracings of a jig-saw puzzle. First and foremost, we have places to visit and the facilities for visiting them. Study these figures. Then ask yourself why people travel!

Using the old family bus as a means to a vacation end is often accounted an expensive proposition. Carefully-tabulated records kept by veteran tourists disprove such statements, showing on the contrary that living expenses ordinarily are no greater than when staying at home. Of course, we must not overlook the fact that individual preferences

play a part in this matter. You may travel in a Cadillac and put up at the finest hostelrys; while the fellow down the street may sit behind the wheel of a decrepit and battle-scarred "flivver" and pitch tent. Authenticated figures tell us that seventy-five per cent of tourists eat and sleep at roadside houses. Think of the economy. Then ask yourself why people travel!

The late John H. Patterson, founder of the National Cash Register Company, knew with unusual business wisdom that an employee can turn out more and better work in a year of fifty weeks! So great a commercial value did he place upon annual two-weeks' vacations that he virtually compelled each of his employees to take one. He went farther by suggesting that a vacation be taken away from home. Getting out into the fresh air and sunlight, he argued, was one thing; but getting away from the deadening monotony of home scenes and squirrel-cage routine was another. And he was right: the human mechanism does need a change occasionally. Incidentally, proponents of the much-discussed and "cussed" family budget agree with one another that five per cent of one's income should be set aside for recreational purposes. Get your pencil! If the expenditure of a small slice of your income will buy health, especially the kind of health that comes from going places and seeing things, can you, to get right down to brass tacks, afford not to travel? Ponder this question. Then ask yourself why people travel!

Get out the old family bus and follow the trail to the silent mountains, the sun-baked desert, the breezy shore, or the cool fragrant woods—take an honest to goodness vacation with the zest of a school boy "storming out to play."



It was Dr. Charles Mayo, of Rochester fame, who declared that ninety per cent of one's education comes through the power of observation. To recall his words is to think instinctively of Billy and Jane. The little tots are in the formative period of their individual lives. Every fibre is tingling with curiosity. What they learn now is bound to constitute a firm foundation for their future intellectual growth. The highways, royal roads to learning, radiate to places where Dame Nature, wiser than all pedagogues combined, awaits her chance to assist in the vital task of building your child's mental health. Lest we forget, what holds true for Billy and Jane holds true also for parents. No mat-

smile. What goes to make up "recreation" is susceptible of speculation and analysis, for along this line no two persons think entirely alike. However, one thing is certain: we should be as careful in the selecting of our recreation as we are our food. "The gods sell anything to everybody at a fair price," said Emerson. When you reach your destination, follow your own ideas in regard to enjoying yourself; but try to base those ideas upon common-sense rules. For, after all, you will get out of your vacation just what you put into it.

If it's the strenuous life you're after, the robust out-of-doors can keep you busily engaged. Hike along woodland



Vacation time is just around the corner—in fact, it is *on us*! Take your tackle and get out on a mountain lake where the big ones bite—if you like to snag 'em, and who *doesn't*? The thrill of a lifetime will be yours.

ter where you go, every trip you take will help you mentally. The main thing is to acquire the knack of observing. Travel, observe, learn! What a perfect trinity. Consider, if you will, the significance of mental development. Then ask yourself why people travel!

Vacation-time is just around the corner. You know it! Burns knows it! I know it! Already the venerable banker is checking his car, airing his tent, appraising the heterogeneous and seemingly endless pyramids of camping accessories, and spending long hours studying dozens of brown-knitting maps. He is hearing the insistent call of the great out-of-doors; and he will answer it. I, too, shall start out one of these days. What do you have in store this year? If you possess a car, if you have laid away some "vacation money," if you are sick of four-walled inclosures, if you want to see what hides beyond the horizon—by all means follow the modern gypsy trail. It doesn't make any difference where one goes. The cardinal idea is to GO! Go north, go south, go east, go west—go anywhere—and you will find buxom Nature greeting you with an infectious

trails, hunt with the camera, search for fossil treasures, swim to your heart's content, go horseback riding or canoeing, plunge into a boiling and frothing stream and match wits with the fighting trout—in fact, do anything your heart or hand desires. The sky is the limit! You'll come back to the grind-stone of your job feeling like a million dollars, eager to grapple with all tasks that daily challenge brain and sinew. Perhaps, as is so often the case, you're seeking surcease from the nerve-killing hurry-scurry of modern living. Very well! Those two old partners, sunlight and fresh air, can perform miracles while you lead a free-and-easy life. All that Nature asks is half a chance to prove how proficient she is in the gentle art of soothing tired nerves and sweeping cobwebs from befuddled brains. She has done the trick millions of times.

But the benefits from out-of-doors life do not stop with the physical and mental man; most assuredly not! The spiritual man, you know, must be taken into consideration, and in ministering to the soul Nature is at her best. Ermine-garbed and cloud-piercing (Continuing on page 287)



Homeler-Clark Studio

Lining the streets of Williamsburg, Virginia, today, the trunks of grand old mulberries, knotted and gnarled, testify to the establishment of the first forest industry in America—the silk industry, under James 1st, in the seventeenth century.

HISTORY IN THE OLD MULBERRY TREES OF WILLIAMSBURG

By ALICE WATTS HOSTETLER

A CHARMING capital, lying midway between Jamestown and Yorktown, has been recreated after years of delving into the very soil upon which it stood, and research into old documents and tomes in this country and abroad. It was the center of a colony's gaiety and fashion, the meeting place of the burgesses who stood between the early Americans and the royal governors, and the site of an industry and of early cultural institutions—a university and the first theatre in America.

History is authenticated by knotted, gnarled trees that border streets of Williamsburg, Virginia, the ancient colonial capital, and are reminders of that early day in American history when men came to this country to establish an industry for England. Living records, they are, of the ven-

tures of men that "may redound to the glory of God, the honour of his Majesty, and the inestimable benefit of his noble Kingdoms; which as they are the true aime and end, the Adventurers and Planters have proposed unto themselves."

The spirit of adventure and the desire for new lands had their part in luring men to America, but it was an ancient industry that secured for them financial backing and royal support and that brought about the first forestation in the New World. This industry initiated a tree planting campaign in this country in the heyday of virgin forests, and nearly two hundred years later it unloosed that mania which was manifested, after a third century had passed, in land booms and bull markets.

A fruit tree claims the distinction of being the principal prop in that famous biblical scene in which Adam and Eve played the leading roles, and it is to one of this species that goes the distinction of being the first of this country's forestry projects. To the mulberry, *Morus alba*, goes the honor, for more than 300 years ago a Virginia company was organized to encourage the growing of mulberry trees. This was not because the gentlemen in charge craved the fruits, but because the foliage composes the proper diet to provide the silkworm with his homespun jacket which is transformable into glorious, glamorous silk.

When silkworms and mulberry trees were brought into England by James I in 1609, silk was the magic word of the day. Men had searched for its secret with the same avid spirit with which they have sought gold and adventured for oil. Although silk had been made for a legendary number of years in China, it was only in the sixth century after Christ that the occidental world learned just what this substance was.

So James I set his heart on promoting the production of silk in his colonies, both because he believed it would be a profitable business and because he wished to discourage tobacco growing. To this end he ordered the Virginia Company and the Earle of South-hampton to see that the "worke may goe on cheerfully and receive no more interruptions nor delays."

The groans that have been heard from speculators during the last five years might be echoes of those uttered by the avaricious in the 1620's who took a flyer in mulberry trees, or worse still, cut down orchards to plant the favorite food of the silk-worm which was to weave them trappings of gold. Dreaming of fortunes to be made, business men in London sent out seven shiploads of colonists to engage in sericulture and provided the courageous adventurers with silkworms and mulberry plants. Shipwrecks caused the failure of the first expedition and it was for the second that his majesty recorded his impatience and had John Boneil prepare a book of instructions on tree planting. This treatise was prefaced by a letter of the king and by admonitions of the Lord of South-hampton, who took no chances that his directions might be "mingled" with others and become confused with common instruction "or a businesse that was not taken so to heart, as this is by us."

It was for this outfit that Master Boneil set down the instructions of which he optimistically and modestly states: "You shall fine all solid truth that I have spoken to you. I take my leave, and as I have blessed you many ways, so give I to all of you my hearty blessing. Prosper and farewell."

Leaving nothing to chance, laws were enacted immediately upon arrival in America under which everyone should take part in silk production, and a forestation program was instituted. Colonists were required by law to plant ten mulberry trees to every hundred acres of land. In 1623, he who neglected his tree planting was fined ten pounds!

Bounties as well as penalties were affixed to encourage the production of silk, and methods that present day chambers of commerce believe they originated were introduced. Virginia's first publicity man burst into verse in this slogan:

"Where Wormes and Food doe naturally abound
A gallant Silken Trade must there be found
Virginia excels the world in both—
Envie nor malice can gaine say this troth!"

Some say that Lord Berkeley, the unpopular governor of Virginia, personally took a coat of Virginia silk to his majesty, the King of England. Others say that he himself wore such a garment. Probably it was a rival salesman of oriental silk who started the story that the British King refused to wear the royal garment presented to him because of its inferior quality. It is known that Charles II wore "some of the silk of Virginia which he found not inferior to that raised in other countries." In the neighboring village of Yorktown, which was to gain lasting fame years later, many of these useful trees were set out. Some of them are still to be seen.

In the quarter century preceding the Revolution colonial raw silk exportation was at its best, be that however humble, for the yearly shipments averaged 500 pounds. Among the states that took up mulberry tree planting and silk production were Virginia, Georgia, South Carolina, Connecticut, Pennsylvania, New Jersey, New York, and Rhode Island.

Mulberry tree planting was promoted throughout the colonies generally. The Connecticut Assembly stimulated forestation in 1763 by offering ten shillings for the planting of 100 mulberry trees—the trees to be cared for and kept in good condition for three years. A half-ounce of mulberry seed was sent to each parish. About that time Dr. N. Aspinwall sent mulberry trees to New Haven and Mansfield. Five years later he sent them into Pennsylvania. Dr. Ezra Stiles, president of Yale, was another enthusiast. He grew silk, kept a diary for nearly thirty years which noted salient points, and provided in his will the following: "I desire it to be a custom among the family that a member on marrying shall plant an acre of mulberry trees for each child that is born."

Even earlier, mulberry trees were taken into Illinois by the French, who were interested in silk culture. Ohio and Kentucky were other inland territory in which the trees whose foliage fattens silkworms were introduced.

The first of the conditions cited in the grant of Georgia was that "planters should be supplied with mulberry trees free of charge." So seriously was silk production undertaken there that 10,000 pounds of raw silk was exported to England in 1759. It was worth about \$75,000. White mulberry plants were set out in 1732 and skilled artisans were sent over to assure the success of the project. A plot of ground was set aside in the suburbs of Savannah where mulberry trees were cultivated at public expense and Bavarians who settled in the town of Ebe- (Continuing on page 283)

ANNUAL MEETING 1934

THE AMERICAN FORESTRY ASSOCIATION

Place	The Tennessee Valley.
Time	October 18, 19 and 20.
Features	(1) Speakers from the Tennessee Valley Authority will describe the project as planned and developing; (2) Field trips giving a cross-section of the work in progress. There will be visits to the Norris Dam and Reservoir; to eroded areas and C.C.C. workers engaged in erosion control activities; to the new town of Norris, a unique development built along lines of modern community planning; to the Norris town forest and tree crop nursery, and a ride over the new Free-way highway. (3) Motor trips to the Great Smoky National Park and to the Cherokee National Forest.
	In point of variety of activities, timely interest and informative demonstrations, the meeting will be the most important ever held by the Association. Remember the dates and reserve them now—October 18, 19 and 20. Further details of the meeting will appear later.

THE LA CRESCENTA FLOOD

Real Origin of California's New Year Catastrophe
Traced to Mountain Slopes Recently Swept by Fire

By CHARLES J. KRAEBEL

ON New Years day, 1934, newspapers throughout the country reported the shocking story of lives lost and homes destroyed during the previous night by storm and flood in Southern California. In the suburban communities of La Crescenta, Verdugo, Montrose, and La Cañada, nestled in a valley some ten miles north of Los Angeles, torrents of water, mud, and boulders carried thirty-four people to their deaths, demolished some 200 houses, and damaged as many more to an extent that they were uninhabitable. A heavy and almost continuous rain, beating unhindered on barren mountain slopes, only recently denuded by fire and already saturated by a five-inch rain of mid-December, soon filled old long-dry channels with flows of flood proportions. Bulkied by ash and soil and fragments of rock, the streams overtopped their banks, clogged inadequate drainage structures and spread through towns in rising waves of destruction. Reaching its peak close to the holiday midnight, when highways were crowded with people, the flood was timed to cause a maximum of tragedy.

Strange indeed must the news have seemed to millions of people who had visited the region and remembered it as a delightful land of little rain and abundant winter sunshine, of mountains covered with "elfin forest," and of "rivers" without water. But to the people of California the occurrence was fraught with the bitter lesson that the very features of climate and topography which give the southern counties their peculiar charm, may combine to form a pattern of potential disaster. To foresters charged with protecting watershed cover against fire, and to engineers charged with protecting their

communities against floods, it gave convincing evidence of the power of destruction which, in settled valleys, may lie in the fateful sequence of mountain-denuding fires and rainfall of great intensity. That, in brief, was the combination of conditions which produced this terrible flood.

For readers who think of floods in terms of great river inundations like those of the Mississippi basin, the term "flood" does not accurately describe these violent outbursts from the canyons of Southern California. Some understanding of local terrain and climate is necessary for a proper appreciation of such "floods," and to those unfamiliar with the region a brief description is owing.

The landscape of Los Angeles County is dominated by mountain ranges which rise abruptly from sloping plains or valley floors to summits varying from 5,000 to 10,000 feet, composed largely of altered granitic rock. All are

deeply cleft by innumerable canyons, and exhibit slopes of excessive steepness. Most prominent of these ranges is the San Gabriel, extending east and west some eighty miles between the coastline and the Mojave Desert. South of this range lies the wide plain of the "Citrus Empire," built up in geologic time by the very erosion which has carved the mountains into their present complex design. Cities and



Four hundred houses were either destroyed or damaged by the flood at La Crescenta. This photograph shows a home in Montrose partially buried by debris carried by the flood waters from Pickens Canyon.

towns dot the plain and are joined by arterial roads, one of which, the Foothill Boulevard (U. S. 66), follows closely the south base of the San Gabriel mountains. Lesser hills stand out above the plain at various distances from the main range.

Two such minor ranges, the Verdugo and the San Rafael, form the south boundary of the narrow Crescenta-



Burned slopes at the head of Pickens Canyon—typical of the area which contributed to the storm's destruction. Prior to November, 1933, this area had been long undisturbed by fire but in that month the cover was destroyed on more than 5,000 acres by a three-day fire. The above photograph was taken following the New Year storm when more than twelve inches of rain fell on the mountain slopes.

Cañada Valley in which, although it is only two miles wide by five miles long, are situated five of the flood-ravaged towns. North of this valley the Mount Lukens sector of the San Gabriel range lifts within two miles from 2,000 to 5,000 feet and is dissected by some sixteen canyons of varying size. Twelve of these, issuing from the mountain upon broad debris cones, change character from canyons to shallow channels and sandy "washes" as they drain southward across the valley. Conducted by various structures through or between the residential sections, they join Verdugo Creek and pass down its channel between the Verdugo and San Rafael hills. At one end of the valley Haines and Bluegum canyons drain westward into Tujunga

Creek, while at the other, several small canyons drain eastward to Flintridge wash.

Previous to November, 1933, the Mount Lukens sector, having been long undisturbed by fire, had become completely covered with a growth of shrubs and small trees locally termed "chaparral." Scrub oak and ceanothus, manzanita, sumac, and chamise occupied the slopes; sycamore, alder and cottonwood, the canyon bottoms; and bigcone spruce formed groves in the upper basins of major canyons. Late in November a fire swept the sector, denuding more than 5,000 acres within three days. Practically all of the mountain slopes above the mouths of the sixteen canyons were burned clean. Haines Canyon, how-



Panoramic view of Crescenta-Cañada Valley as seen from the Verdugo Hills. The white washes, clearly discernible in the center and left of the picture, illustrate how the death-dealing flood water descended from the burned canyons and swept across the populous valley New Year's Eve, killing thirty-four people and causing untold property loss. Four hundred homes were destroyed or damaged.



Chaparral covered slopes of San Dimas Canyon, untouched by fire for more than half a century, were in the path of the storm. The run-off there was only fifty-one cubic feet a second per square mile compared to from 500 to 1,900 cubic feet from the burned canyons.

ever, lost only 300 acres of its total cover of 925 acres. The Verdugo watershed, embracing 6,000 acres of mountain slopes and 8,200 acres of valley plain, lost 4,000 acres of chaparral cover from its mountain area. In many places the terrific heat of the fire consumed the surface litter as well as the shrubs, leaving a powdery ash to a depth of several inches, particularly subject to erosion.

Damaging floods from burned mountain areas are commonly attributed to "cloudbursts," and only rarely are rainfall records available in the catchment basins whence came the floods. Fortunately, in the Verdugo case, reliable records of rainfall were available from many points, not only throughout the storm area but also from seven gages within the burned watershed itself. These records show that the rain, between the early morning of December 30 and the afternoon of January 1, fell with remarkable uniformity over a foothill area approximately twenty miles wide and fifty miles long. Some thirty stations in this area received an average rainfall of 13.03 inches,

ranging in quantity from Malibu on the west with 12.61 inches, through Altadena in the center with 12.73 inches, to Claremont on the east with 13.95 inches. The average

of seven gages on the burned Verdugo watershed was 12.56 inches. These records represent a period of sixty-three hours, with actual rainfall occurring for approximately thirty-eight hours of that time. The storm was typical of the region in extending over several days with periods of relatively high intensity. It was unusual in that it brought a heavier fall to intermediate and low elevations than to the mountains.

Intensity records show that the heaviest fall occurred between the afternoon of December 31 and early morning of January 1, the maximum intensity on the burned area occurring apparently in the hour before midnight. In this hour 0.94 inches were registered in Haines Canyon, and 0.88 inches on Mount Lukens. Given this

Table I
RUNOFF AND EROSION
from
Burned and Unburned Watersheds
Storm of Dec. 30-31, 1933 and January 1, 1934, Calif.

Watershed	Rainfall for storm in inches	Total area of watershed in square miles	Percentage of total area		Runoff—Maximum cubic ft. per second per square mile	Erosion—Cubic yards per square mile
			Unburned	Burned		
Verdugo	12.56	19.13	67	33	1000	50,000
Arroyo Seco	12.32	16.24	99.4	00.6*	58**	No Record
San Dimas	10.82	16.85	100.0	0	51	56
Haines	11.26	1.45	68	32	1000	67,000

* Recorded by U. S. Geological Survey. Other records computed from channel measurements.

** This area of fifty-eight acres lightly burned in backfiring during the battle with the main conflagration, was too small to affect appreciably the runoff from this large watershed. Forest officials in the canyon reported that the material which muddled the water of the Arroyo Seco in its lower reaches came directly from the gulling of road-slopes of the new Angeles Crest Highway.

uniform rainfall over so large a territory, the regulatory influence of forest cover on runoff and erosion is strikingly demonstrated by comparison of results on the



This picture indicates amount of debris carried into the valley by the flood. C. W. A. workers are clearing Foothill Boulevard, La Crescenta, of flood debris from Dunsmere Canyon.

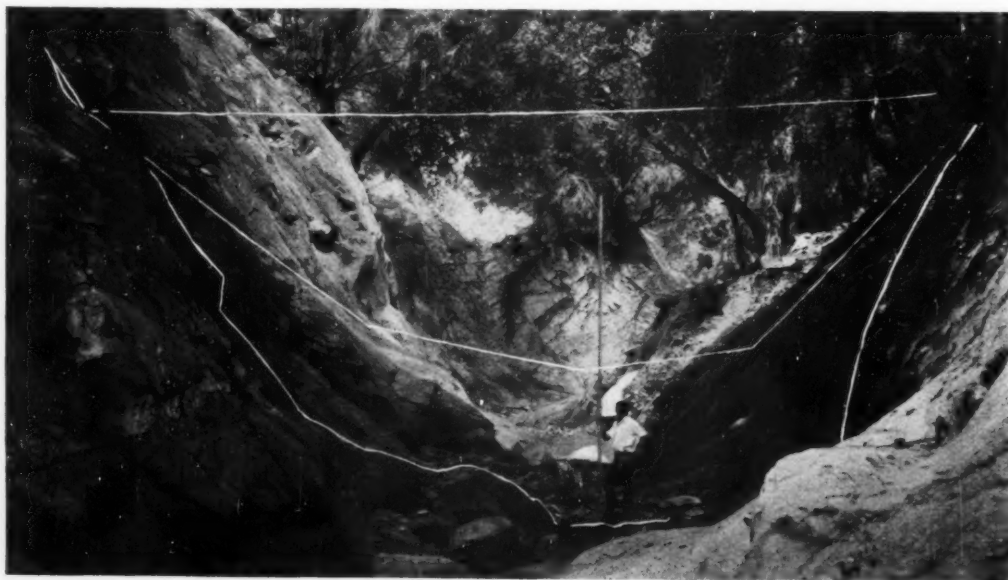
been possible by methods of survey. At the point where Verdugo Creek leaves Crescenta Valley, approximately 92,000 cubic yards of material were caught by a debris basin constructed in the stream channel from an old gravel quarry. Reconnaissance of the material dropped on the valley floor by Verdugo's tributaries revealed a volume of more than 500,000 cubic yards so deposited. Since a cubic yard of such material weighs approximately a ton, at least 50,000 tons of material were moved from each square mile of the burned area. This calculation accounts for only approximately 310,000 cubic yards of the material moved. On the basis of measurements in channels of the burned area it is estimated that the balance of 280,000 yards was derived chiefly from channel bottoms by the flood flows. Careful observation in partially burned areas revealed only insignificant

amounts of erosion from unburned portions of their slopes.

burned Verdugo Watershed with those on the long-unburned Arroyo Seco and San Dimas drainages in the San Gabriel range. Both these watersheds, are sufficiently similar to the Verdugo in topography, area and vegetation to justify comparison.

The Verdugo watershed, having a total area of approximately nineteen square miles with thirty-three per cent burned, received twelve and one-half inches of rainfall during the storm and yielded a peak runoff of 1,000 cubic feet per second for each square mile of its burned area. Conservatively estimated, this runoff was bulked by half its volume of eroded debris. Flood runoff under these conditions is scarcely possible of precise measurement, since it represents a flow, not of water alone, but of a fluid swelled in volume by an indeterminate load of eroded material and obedient to no law of hydraulics. The total volume of erosion and solids transported by all the streams of the Verdugo drainage basin can probably never be determined. Yet an estimate has

In Haines Canyon, comprising an area of one and one-half square miles, with less than one-half a square mile burned and a rainfall of 11.26 inches, conservative computations also placed the maximum flow at 1,000 cubic feet per second per square mile of area. This runoff, too, was bulked by at least half its total volume with eroded material, washed from the burned slopes or scoured from the canyon bottom. At the mouth of this canyon the existence of a completed debris basin made possible the measurement of (*Continuing on page 286*)



Scoured channel of Pickens Creek in the burned Verdugo watershed, as it was left by the New Year flood. The upper string marks high-water level, middle string the probable pre-storm channel, and bottom string, the channel when high-water state was reached by the stream.

A NEW DEAL FOR TIMBER CONSTRUCTION

By

O. J. JOHNSON

A FOREST lookout tower on a mountain peak or a bridge across a roaring mountain stream breathe the very essence of western forests. In the eternal fitness of things, these structures should be built of wood. To the regret of foresters, all too often it has been necessary for technical reasons to use steel.

Comes now a new technical development—the split-ring stress construction—which permits a greatly extended use of timber in large building and thus brings a new deal for wood in this type of structure. Application of the new principle was made by the United States Forest Service in building a lookout tower on Clear Lake Butte in the Mount Hood National Forest, Oregon, and a suspension bridge over the Cispus River in the Columbia National Forest, Washington.

The Clear Lake Butte lookout tower—103 feet in height—is the highest lookout tower of timber the Forest Service has ever built. The Cispus River bridge was improved with a 240-foot timber stiffening truss. In both of these structures wooden tension members, using the split-ring construction, replaced the steel rods which formerly were standard practice for tension members in timber structures.

While timber has a great axial tensile strength, this



A Forest Bridge for the Forests—the wooden bridge at Cispus, showing truss construction.



The lookout tower on Clear Lake Butte is 103 feet high—the highest tower of timber the Forest Service has ever built—and it was made possible by the use of the split-ring construction for tension members.

property has been little used in the past, due to the difficulty in providing a connection at the ends of a tension member which will develop the strength of the timber.

Such details have heretofore been awkward, inefficient, costly, and quite generally of doubtful value, requiring larger timbers than necessary for the axial load alone. The split-ring overcomes this difficulty and provides an efficient connection, making possible the use of a timber tension member up to its full allowable unit stress.

Briefly, the split-ring is a piece of flat steel pressed into a circular ring. It is fitted into circular grooves in the connecting timbers, one-half the width of the ring in each timber. While European engineers have built ring-connected radio towers—one over four hundred feet high—the Clear Lake Butte tower is the first of ring-connected type in the United States. European construction includes both guyed and unguyed types. For Clear Lake Butte, the guyed type was chosen for economy, as the unguyed tower requires large masonry footings to provide weight to resist the overturning effect (Continuing on page 286)



A Cabin in the Woods Camp

THE SPIRIT OF THE C.C.C.

By

HAROLD S. FRAINE

I HAVE been acting as one of the supervisors in a Civilian Conservation Corps Camp near Plymouth, Massachusetts, since the inception of the forestry program last June. Whenever, as often happens, I meet people who have no direct contact with these camps and the work being done, they are anxious to learn just how matters stand, what the value of the work is. The only way I know to express what there is to know about the camps, and conditions there, is to tell exactly what I experienced and feel. I find the average outside point of view quite different from my own.

I have been used to the out-of-doors all my life, but I shall never forget the feeling of complete isolation that came to me the first night I slept in a C.C.C. camp. There were no lights and one must sit on his bunk, and be ready to go to sleep when darkness came. Meals were out in the open, even in pouring rain. Wetness and dryness depended wholly on the weather. There were no chairs to sit on, and so, unless you could go to your bunk, you must stand, the ground not being attractive for sitting.

Never could anybody be so close to nature. They put these camps mostly in the wildest places, for it is usually in such spots that the forest can be most improved. I often thought how several centuries ago the Pilgrims had settled this very land, and how they faced close contact with the elements.

Like all pioneers, we were on virgin territory, and we had to "hew an empire from the wilderness." And that is no exaggeration either; for it must be understood that these hardships are now largely past tense. With hard work, and plenty of it, an apparently miraculous change has taken place in the part of the pine woods where we live. First we must clear away the brush and stubble in order to walk around a bit, then roads were built to permit access for trucks, later a

telephone line was constructed, then later—much later, barracks instead of tents, a dining hall, and then finally—the crowning achievement—five miles of power line for electric lights. From something that was really nothing but land in the raw we have built a reasonably civilized community, and each day and each week as it goes by we enlarge the periphery of that civilizing process; making it possible for more and more use to be made of this area of God's earth.

Reasonable people do not go for a stroll in scrub oak brush. It is not exactly impenetrable, but practically it is so. With each mile of trail, with each acre of brush cut, more of this country is opened up for any purpose. The point is not what use is to be made of the land. It is rather that nobody could even get in and see what use could be made out of it without these trails, without the sweat and labor of pioneering work.

People say this land has no value. Of course, it has no value. And it would continue to have no value to the end of time unless somebody came in and hewed out some bits of "culture," some marks of civilization, from this wilderness. Thus we may say that these camps are a highly creative force in that they are making something that is in some degree useful, and accessible, out of ground that otherwise would be relatively useless—and worse than use-

less, because of the fire hazard of inaccessible forest to surrounding communities. Generations that come after the C.C.C. work here is perhaps forgotten, will never have to face the pioneering conditions we have faced. The brush may grow again; but the fire lanes and the many miles of road and trail will endure. People laugh at our dirt roads, and say they can never find their way around, but they forget that without our dirt roads they could not even come in here to enjoy their laugh, and the



"The C.C.C. boys have met the challenge of the wilderness in a way that shall do credit to the best pioneering traditions of our nation. They are to be credited with more energy, more bravery, more rugged manhood in facing utterly new isolated conditions with so little complaint or trouble than most people know."

joy of maze-like roads. People think we lead a primitive life, and that it is a backward step to put boys out in the wild-woods when they should be learning the foibles of civilization. But they miss the vital point, which is simply that in this land, our common heritage, this Commonwealth of Massachusetts, one of the most civilized areas in the world, there were these square miles of waste land. The full utilization of all — not just a part — of our natural resources, is the foundation of all new wealth and well-being. I have to laugh when people ask me if the C.C.C. boys work hard. The only satisfactory answer to that question is to ask another one. If you were put to the job of hewing out a home for yourself in the wilds of Maine, miles from the nearest town, no water, no bath, no fuel save the wood you cut in the coldest of winters, if you had to construct all the benefits of shelter and water and heat for yourself, would you work hard? What matter if there are two hundred instead of two?—that only adds quantitatively to the problems. It is to the everlasting credit of the United States Army that their officers, impressed into this service, were able to take boys, most of whom have less than Boy Scout experience, and were able to marshal the force in their untrained muscles to build for themselves a home in the woods. Leave out all the question of the valuable forestry and road work, and fire prevention, and even the creation of new civilized areas in our Commonwealth, still merely to have these boys survive under such conditions is a feat

of organization without parallel in our times. I want to return to the original question:—"Do the boys work hard?"—and to ask another question, which is not so impertinent as it sounds; do you suppose the people who landed from the *Mayflower* worked hard?

In one fell swoop nearly all of the softness of civilization was swept away from them. Hard?

They had to become hard. The social workers and the ministers say: "Look how healthy the boys are; these camps must be good for them." Naturally they are healthy; imperatively they are healthy. Healthy is hardly the word. By the genius of organization they have become not only healthy, but creative; and I submit that the latter is of consummately greater importance than a mere question of health. Health, like coal from a mine, would scarcely be attractive without its teleological functions. These boys, these men, have hewed a home from the wilderness; but more than that by far, they have made it possible for you and me to have homes where they have worked. **s h o u l d**

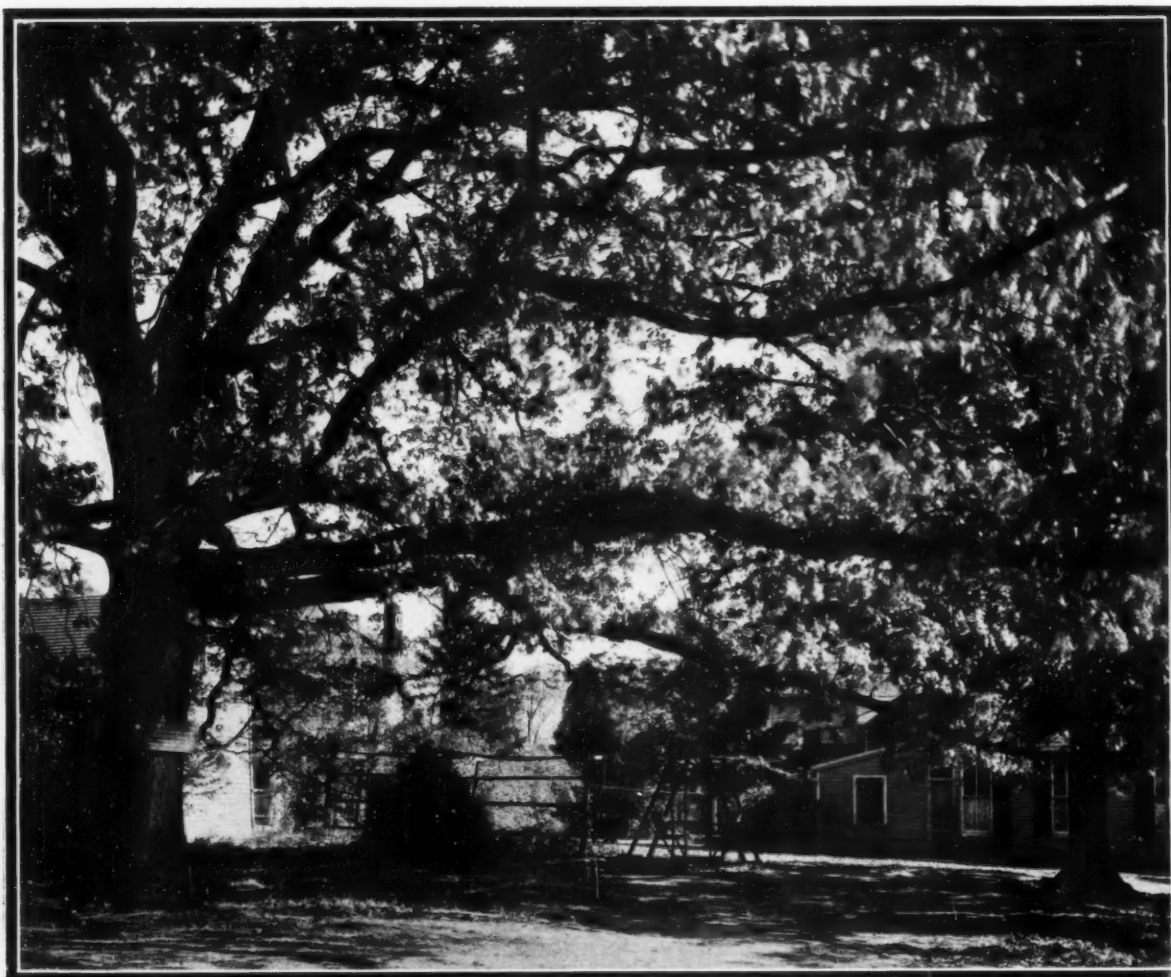


A new spirit is abroad in the land! Hard work, and plenty of it, by the C.C.C. is bringing about miraculous changes in the woods. Each mile of trail, each acre of brush cut and cleared, means more land in the raw brought into useful service. Above: C.C.C. boys surveying Wisconsin winter woods. Below: a plantation in the Miles Standish Forest, Massachusetts, after being "trimmed up" by the C.C.C.



ever the need or desire arise. Those of us who live in towns and cities have scant appreciation of the long hard process of creation that has gone on, both by the living and by the generations of the dead, in giving us the comfort we take for granted. When we go into the country for any reason we travel on roads; we use lanes and trails. We think we pay for what we enjoy; but a moment's reflection will show that much (Continuing on page 284)

The Hall of Fame for Trees



The "Mammoth Oak" at Washington, D. C.

The "Mammoth Oak" at Washington, D. C.

THIS great tree, which has recently witnessed its last battle and gone down in ignominious defeat before the so-called march of progress—a tragic sacrifice—was one of the most interesting in or near the Nation's capital. It was destroyed in the straightening of Piney Branch Road, despite a valiant battle waged to save it and over the protest of a large group of thinking people who hold the history of Washington, as written in her trees, to be sacred.

Standing on the edge of the city, perhaps this giant of the Colonial forest was better known as the "Confederate Oak"—though the latter is a misnomer, and the inference wrong, as the record shows it to have been used as a signal station by both the Union and Confederate armies when the historic ground on which it stood was in dispute. Mrs. Jerome Hubbard, on whose property the great old tree stood, had refused to sell it and so the ground was condemned. She felt deeply her inability to save the tree both for posterity and because she loved it so. The tree was nine feet in circumference, and the magnificent sweep of branches spread its green glory over one hundred feet. It was nominated for the Hall of Fame for Trees in May, 1932, by Miss Agnes C. Robinson, of Washington, a daughter of Conway Robinson, an early and influential resident of the Capital city. In making her nomination, Miss Robinson—who invoked the highest powers in behalf of the tree when it was first threatened—wrote:

"With the beginning of the Civil War, Washington was surrounded with a belt of fortifications built on the hills close around the city. The ground between was honeycombed with rifle pits—most of the trees were cut down to afford the forts,—Fort Totten, Bunker Hill, Fort Lincoln, etc.,—a full view, should an attack be attempted upon Washington. Occasionally trees were left. Of these was a large tree, growing so prominently upon commanding high ground at Takoma Park that it was left to grow and spread and later was used by the United States government, together with the white tower of the Soldiers' Home, as a point

from which to signal to the forts around. My father's house was close to the Soldiers' Home, so though I was but a small child at the time, I clearly remember my interest on looking up at the white tower with its bright lights as they flashed at night and its gay flags as they waved in the sunlight through the day. When, later, under General Early, the Confederates approached Washington and reached Takoma Park, they found this Mammoth Oak in use as a signal station by the Government. This fact was verified by a Confederate soldier, who was with General Early at the time, and who later lived near Takoma and often came to sit beneath the shade of the old tree. The sign upon the Mammoth Oak marks the point whence the signaling both by Union and Confederate forces severally took place."

The wording on the sign on the tree, to which Miss Robinson refers, was as follows:

"Used as a signal station by Confederate soldiers under General Early during the attack on Washington July 11th and 12th, 1861. Also occupied by Confederate sharp-shooters."



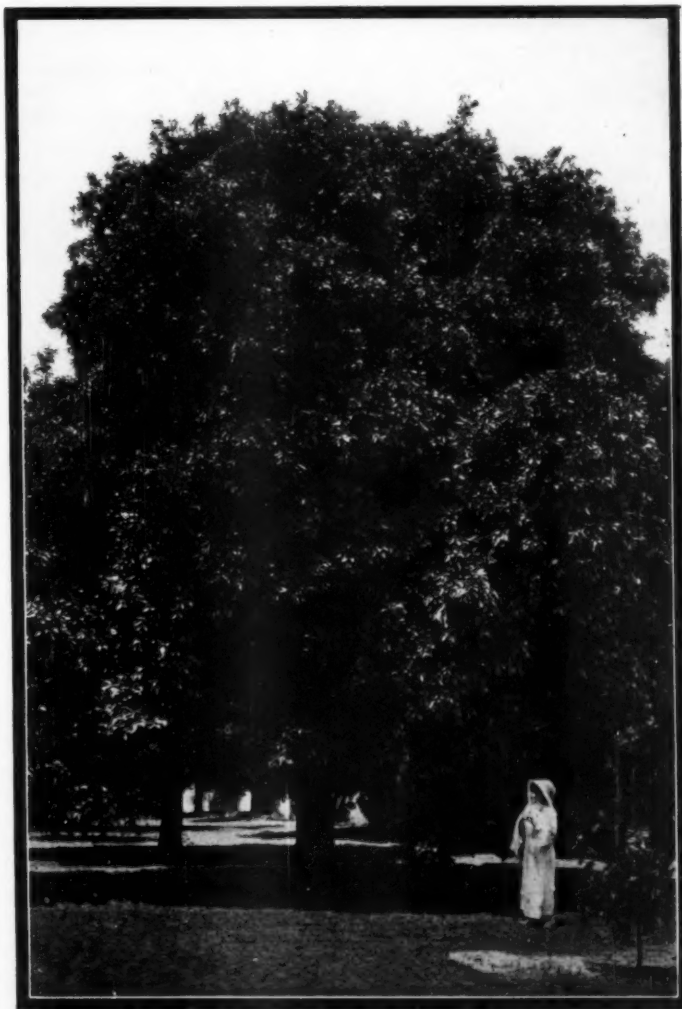
The "James A. Garfield Grapefruit Tree"

This perfect specimen of grapefruit is said to be the largest tree of its kind in the world. It towers to a height of forty-five feet and the splendidly formed trunk, eleven feet in circumference at the base, rises twelve feet before the first branches occur. The spread is over forty feet. Nearly seventy years old, it claims distinction also because of its great productivity and the quality of its fruit.

Its personal history, interwoven with important events of the period when it was planted, is interesting. "In 1878 General W. P. Hazen bought two thousand acres of forest land on the shore of Lake Thonotosassa," writes Lloyd Logan, of Tampa, who nominated the tree for the Hall of Fame. "This beautiful oval lake is about fourteen miles from Tampa. It was called by the Indians Tenotosassa, meaning 'Lake of Flint,' because of the deposits of flint rock near it from which they made their weapons and tools. After the close of the Seminole War in 1842, Billy-Bowlegs, a famous Seminole chief, established his Indian village on the part of the lake shore where General Hazen built his beautiful home—Belvedere. The estate is now about forty acres, and is the home of Mrs. H. H. Stebbins, and is still one of the show places of southwest Florida. The famous old Fort King Road runs by its entire length.

"General Hazen purchased the 'James Garfield' grapefruit tree on the afternoon of the third of March, 1881, from Robert Williams, whose farm is now about one mile south of Dover. At that time, the tree was fifteen years old. The tree was dug up, pruned, placed on the wagon and taken to the Hazen estate. It arrived after dark and was left over night on the wagon. The next day, March fourth, was a gray day with a sharp wind and no sunshine. Caesar Cook, Young Houston, Pinckney Coleman, George Adams, and Martin Miley were there for the tree planting. The negroes dug the earth out, throwing the sand to make the hole the proper shape and depth. Finally it was ready. The roots were trimmed while the tree was on the wagon. Then, every man assembled was given the opportunity to test his strength to the uttermost to lift the heavy tree and place it correctly in the ground. Suddenly it 'dropped' and settled to rest where it flourishes today.' When this happened, General Hazen, who was watching the proceedings with keen interest, remarked: 'Martin, this tree shall be named James Garfield. He takes his seat today as President,—a better man—or tree—could not be found.'

"The 'James Garfield' tree for sixty years has stood supreme among its kind, its perfect beauty a charm,—its abundant fruit a delight. Even as in the past, it will probably flourish for many years, a continuing benefit to mankind."



The "James A. Garfield Grapefruit Tree" at "Belvedere," in Southwestern Florida.

THE LAST CALL FOR TRAIL RIDERS!

Parties Forming to Ride the Wilderness Trails in July With

The American Forestry Association's "Trail Riders of the National Forests".

LESS than six weeks remain before The American Forestry Association's "Trail Riders of the National Forests" enter the wilds of Montana to explore the most rugged and greatest wilderness area remaining in the continental United States. The first party will get under way from Missoula, Montana, on the morning of July 9, the second party July 19.

There is still time to join either or both parties, but reservations should be made immediately.

The first party will explore the spectacular South Fork Wilderness of the Flathead National Forest, penetrating into the remote Sun River Wilderness of the Lewis and Clark National Forest. The riders making this trip will cross and recross the Continental Divide, reaching elevations of more than 10,000 feet.

The second party will confine its exploration to the high glacier country of the South Fork Wilderness—the land of nameless lakes and unique geologic formations. It is a country without roads, unchanged for hundreds of years.

The costs of the two trips are based on actual expense. The first trip, all inclusive, from Chicago back to Chicago, is \$178, the second trip \$164. From Missoula back to Missoula the cost for the first trip is \$98, the second trip \$85. From Chicago a standard lower berth is provided. Meals on the train, however, are not included in the costs.

Both parties will be accompanied by a naturalist and a Forest Service official. Forest Rangers will ride with the parties throughout the trips. Expert guides and wranglers will be provided.

Thirty-five riders pioneered these unique exploration trips in 1933 under the direction and leadership of The American Forestry Association. Here is what some of them had to say upon their return:

"The trip was a glorious experience," said Miss Angela C. Janszen, of Cincinnati. "It surpassed my expectations."

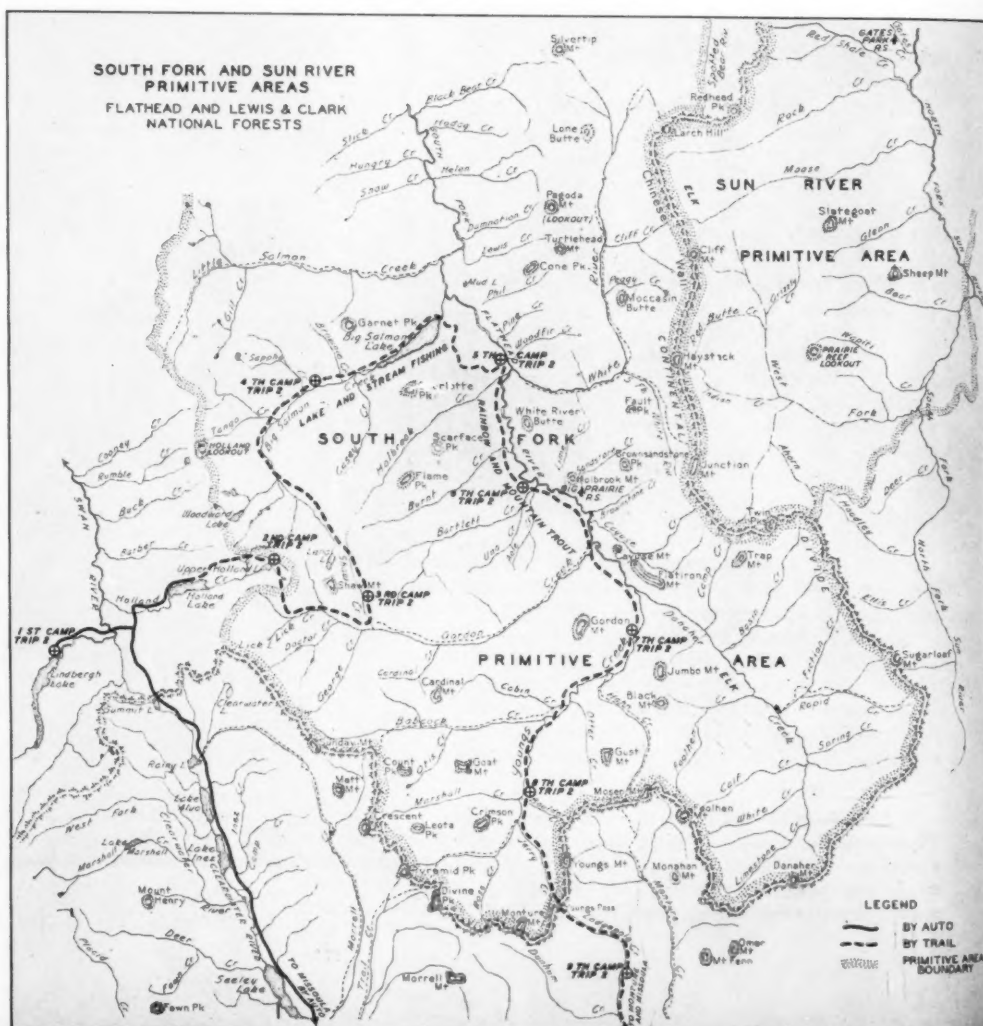
"The trip was so different," said Stanley M. Rowe, also of Cincinnati, "that it will always stand out in my mind as a most unusual vacation. The best point of all about it was that it appealed so greatly to all members of my family, from my fifteen-year-old son to his grandmother."

"It is impossible," said Maurice Thomson, of Minneapolis, "for me to express in a few words the debt of gratitude I feel to the Association for introducing me to this marvelous opportunity."

The 1934 trips of the Trail Riders will be even more enjoyable. Several more days have been added to each trip.

Ride with the Trail Riders. The American Forestry Association, 1713 K Street, N. W., Washington, D. C., will make immediate reservations for you. But act at once. Less than six weeks remain before it will be "Boots and Saddles!"

This is the last call to ride with The American Forestry Association's "Trail Riders of the National Forests" in July. The map below shows the South Fork Wilderness of the Flathead National Forest, in Montana, scene of Trip No. 2.



THE MOVE FOR BETTER FOREST TAXATION

By R. CLIFFORD HALL

TAXATION is like the weather. Uncertain and universal, it affects us profoundly and satisfies us not at all. It provides a sympathetic topic of conversation for new friends and a convenient scapegoat for old failures. Taxation unsuited to forests is sometimes pictured as the chief cause of our slow progress in practicing forestry on privately owned lands. Sober judgment recognizes it as one of a number of obstacles to forestry. Certainly the subject takes no back seat at forestry meetings, but in the past the action taken has been generally without much effect.

The recent Conservation Conference called by the Secretary of Agriculture in connection with Article X of the Lumber Code was confronted with the forest tax problem. This Conference, after careful consideration, proposed an aggressive move for better forest taxation. But before summarizing its recommendations, let us review briefly some important aspects of the problem as they have appeared in the studies made by the Forest Service through its Forest Taxation Inquiry.

Why is forest taxation a problem? The answer to the question is in large part tied up with the fact that our system of financing governmental activities places great reliance on the property tax. The property tax as applied in this country is unfavorable to forestry both because of a difficulty that is inherent in the property tax principle and because of faulty and illegal administration.

The inherent difficulty of the property tax in respect to forestry is that the payment of the property tax comes every year, while the income from forestry, under ordinary American conditions, does not come every year but only after a more or less extended period of waiting. To be sure a well-managed forest adequately stocked with trees of different ages does yield an income every year, as everyone knows who is acquainted with the larger private forests in countries such as France and Germany where the use of land has been intelligently stabilized. Therefore this difficulty can best be met, where conditions permit, by sustained yield forest management which will involve realization of income every year or at least every few years.

But in most forest regions of America the timber has been so heavily cut that the practice of forestry necessarily involves waiting for income on the major part of forest land while the capital in growing trees is being restored. The tax which must be paid during this period of waiting is a substantial part of the cost of the ultimate sustained yield forest, and may be the deciding factor in determin-

The author of this article is Assistant Director of the Forest Taxation Inquiry, a governmental agency which has recently completed a five-year study of forest taxation throughout the United States. He therefore writes from an intimate knowledge of forest taxation in its relation to the whole problem of land taxation.

Mr. Hall's article is the third of a series dealing with major phases of the new forest program formulated during the past winter. The first article appeared in the April issue and was by Mr. L. F. Kneipp, who discussed the place of public forests in the national program of planned land use. Last month Mr. Burt P. Kirkland presented the subject of forest credits.

Next month Col. William B. Greeley, former Chief Forester and at present Manager of the West Coast Lumbermen's Association, will deal with the question of public ownership of forest land from the standpoint of the forest industries.—EDITOR

ing whether the establishment of such a forest would be profitable. In other words the usual American situation is that a growing forest is a deferred yield property, a property the income from which is deferred for a period of years with the expectation that the value will be correspondingly increased. The property tax takes a higher proportion of prospective income from such deferred yield property than from property yielding a regular annual income. A mathematical proof of this fact will be contained in the forthcoming report of the Forest Taxation Inquiry.

Aside from this inherent defect of the property tax as applied to deferred yield forests, faulty administration deals a severe blow to the

forest-growing enterprise. Practically all of the capital involved in forest growing is in real estate which must be exposed for a long period of time to the hazard of a tax burden that is uncertain and often arbitrarily determined. The administrative weaknesses of the property tax are found chiefly in the processes of assessment and collection.

Assessment, the determination of taxable value, is the heart of the property tax. An inaccurate assessment results in an unequal distribution of the tax. Careful studies have shown enormous inequality in assessment among individual properties within the same taxing district. They have also shown that forest lands, particularly cut-over and other forest property of low price, usually get the worst of this unequal assessment. As an example, reference is made to a study covering seventeen northern counties comprising the forest region of Wisconsin. Assessed value was compared with actual value as indicated by sales of nearly 6,000 individual properties divided according to the class of property. In every county studied, cut-over forest property was the class with the highest ratio of assessed to actual value. In six of the seventeen counties the ratios for cut-over lands were about double the corresponding ratios for farm lands in the same counties. This means that anywhere in these six counties a cut-over forest tract worth \$5,000 would be likely to bear about the same tax as a neighboring farm worth \$10,000. It is just as if a small man weighing 100 pounds were asked to carry as heavy a load as a big man of 200 pounds.

Similar and worse discrepancies have been found in other States, for Wisconsin has long had one of the most efficient State tax commissions and has done more than most States to improve the quality of local assessment. Old-growth, mature timber as a class does not suffer from relative over-assessment so generally as cut-over forest

property. Nevertheless, it is also discriminated against in some districts. Even where timber is favored as a class, there remains the danger of erratic assessment of individual properties. The disadvantage from unequal assessment which a forest enterprise is likely to suffer in many States overshadows its inherent disadvantage under the property tax as a deferred yield property.

Collection of taxes is also a matter of concern which can only be mentioned here. It may be noted in passing, however, that inefficient collection procedure invites tax delinquency, and tax delinquency increases the burden on tax-paying property.

Forest taxation is a problem not only because of the weaknesses of the property tax, but because forests are usually located in sparsely settled districts where governmental costs are high in proportion to population and wealth. The reason governmental costs in these districts are generally high is in part because settlement has been allowed and encouraged in regions where settlers cannot make a living and support government after the virgin timber has been cut, and in part because our system of local government is unduly complicated and expensive. There is not sufficient taxpaying ability in many forest districts to support the kind of governmental organization that is imposed upon them, and the results are now appearing in widespread tax delinquency and virtual bankruptcy of many local governments.

With the above aspects of the forest tax problem in mind, the answers to the question of what should be done about it follow naturally. They are concerned chiefly with the adjustment of the tax burden to deferment of income, improvement of the operation of the property tax, and reduction in the cost of local government.

The most direct way of adjusting the tax burden on forest property to deferment of income would be to exempt such property from the property tax and apply an income tax instead. Since it is impossible to determine net income of our irregular forests by any method adapted to tax administration, it was natural to turn to the yield tax, a tax on gross income as measured by the stumpage value of the felled timber. The yield tax has received widespread attention in this country and is now sanctioned in limited forms by the laws of fourteen States, although nowhere applied to more than a very small portion of the privately owned forest land. The conclusion has been reached, however, that it is neither practicable nor desirable to substitute the yield tax for the property tax in respect to forest property generally. Among other considerations, the local governments need the regular revenue provided by the property tax, and the forest land owners need the protection that comes from having a tax rate that is uniform for all real estate within the taxing district. Therefore the Forest Taxation Inquiry has proposed a number of modifications of the property tax designed to make the tax burden about equal to that of a tax on income or net yield at a rate equivalent to the property tax rate.

An income tax rate is considered equivalent to a property tax rate when the two rates give the same amount of tax in respect to a property yielding an annual income equal to the interest on the capital. For example, a capital of \$100 yielding an annual income, before deduction of the tax, amounting to \$4, would be taxed \$1 (one per cent of \$100) under a one per cent property tax rate and the same amount (twenty-five per cent of \$4) under a twenty-five per cent income tax rate. In this case, the tax-free interest would be \$3. Thus, with a tax-free interest rate of three per cent, an income tax rate of twenty-five per cent is considered equivalent to a property tax rate of one per cent. When applied to a deferred yield property,

however, an unmodified property tax of one per cent will constitute a heavier burden than an income tax of twenty-five per cent, because the property tax must be paid in advance of income.

The proposed modifications of the property tax consist of three practical ways for removing the excess burden inherent in that form of tax. The first is to reduce the current property tax on the deferred yield forest property by an amount proportioned to the extent of income deferment in each individual case. The second is to defer the payment of property taxes until income is received. The third is to apply a flat rate reduction to the property tax based on the degree of income deferment which may be considered typical or average for the State. The adjusted property tax follows the first plan of a tax reduction increasing with deferment of income. The deferred timber tax follows the second plan of deferring taxes until receipt of income. The differential timber tax embodies the third alternative of a flat reduction. These three plans will be described in detail in the report of the Forest Taxation Inquiry.

Another important part of forest tax reform is the adoption of measures for improving the operation of the property tax. The importance of a good assessment has been pointed out. Changes in assessment organization and personnel are required. Assessment should be centralized under control of jurisdictions large enough to maintain an efficient organization of full-time, well-paid, expert assessors appointed on a merit basis. In general, State assessment would appear to be the ideal, and the next best, centralization by groups of counties or towns. Where neither one of these measures can be obtained, assessment may be improved by an increased degree of State control and assistance to local assessment.

Along with organization and personnel improvements, the most approved aids for arriving at sound assessment should be introduced. These include maps, surveys, and records of sales. Scientific methods of assessment, developed already in many cities, should be adapted to rural property. It would be helpful to have more cooperation between the tax-paying public and the assessing officials. Instead of the misfit, illegal assessment that now serves, the goal should be the correct assessment of all property; in most States at its full value as now required by law, and elsewhere at the fraction of full value specified in the law.

As to tax collection procedure, it should be made as simple, regular, and undeviating as possible. The practice of extreme leniency, in addition to embarrassing the public treasury, intensifies the problem of the delinquent taxpayer by allowing his taxes and penalties to pile up to a hopeless total. The period allowed for redemption of tax-forfeited land should not be unduly extended, so that land which cannot be restored to the tax roll by sale may be definitely transferred to public ownership without remaining too long as "no man's land." If there is much land so unpromising that it cannot be held under private ownership, the sooner it gets under public administration the better. The most effective procedure in tax collection is well known to tax experts; it remains only to overcome inertia and the opposition of the few who benefit by existing practices.

Relief from burdensome taxes on forest property through reduction in public expenditures, without dispensing with essential services, depends largely on the reorganization of local government. The existing forms of local government, inherited from pioneer days, have in many cases been rendered unnecessary and inappropriate under modern conditions by the growth of transportation facilities and by other changes in economic (Continuing on page 285)



EDITORIAL

A New Trail for the Indian

THE WHEELER-HOWARD "Indian Rights" bill (S. 2755; H. R. 7902), which as this issue goes to press is under consideration by the committees on Indian Affairs of the House and Senate, would blaze a new trail for the American Indian. In many respects it is essentially a conservation measure and as a whole is probably the most important piece of Indian legislation ever proposed to Congress, seeking as it does to establish Indian self-government, so long denied to these wards of the government, and to set in motion a rational system of land development and conservation in place of the long régime of land wastage and liquidation.

While all Americans who wish freedom and justice for the Indians will sympathize with the bill as a whole, it is the land provisions to which we wish particularly to draw the attention of the readers of *AMERICAN FORESTS*. The Wheeler-Howard Bill seeks not merely to put a stop to the stupid policy of land "allotment" which has been a perfect tool by which whites have acquired vast areas of Indian land for a song, but it proposes to set up a long-time land purchase program for landless Indians, and to bring Indian lands under a permanent program of conservation and development for Indian use.

Of the forty-eight million acres now in Indian ownership, some eight million are timberland and thirty-six million grazing land. The Indian Service has made much progress in the past twenty years in bringing the Indian forests and range lands under proper management. But the allotment system, by which most of the forest and grazing land was cut up into small parcels in individual ownership, has enormously hampered the intelligent handling of these lands. Indeed, sustained yield forestry in many Indian forests is impossible until the allotted lands are reverted into common ownership of the tribes concerned. Moreover, the allotment system led inevitably to the concept that ultimately all Indian land would be "liquidated" by being turned into cash through sale to whites. Under this concept, many of the Indian forests have been overcut on the ground that the Indian allottee would not own his allotment long enough to get a second cut. The allotment of grazing lands has made range management so difficult that in most cases the only solution has been to lease these parcels to white livestock owners, thus depriving the Indian of an opportunity to go into the cattle or sheep business.

The Wheeler-Howard Bill proposes ultimately to revert the allotted Indian forest and grazing lands into tribal or community ownership. It squarely recognizes the principle that Indian forests must henceforth be managed for sustained yield production and that Indian grazing ranges must be protected from over-grazing and erosion. It sets

up a long-time land acquisition program, for the double purpose of providing land for landless Indians and of consolidating the badly checker-boarded reservations so as to permit the establishment of solid blocks of forest and grazing lands for intelligent management. It creates a revolving fund of ten million dollars to make the beginning, at least, of an Indian credit system for such purposes as housing, the purchase of seeds, agricultural implements, work stock, cattle and sheep, and the development of co-operative and community enterprises such as saw-mills, dairies, and similar undertakings. It provides funds for the technical training of Indians as foresters, range managers, engineers, administrators, and in other professions concerned with the management of Indian property and Indian services. A vital provision of the Bill is that which would henceforth make Indian lands inalienable outside the Indian community.

Of special interest to our readers is the policy of John Collier, Commissioner of Indian Affairs appointed by President Roosevelt, to assure not merely the permanent productivity of the Indian forests, but to permit their operation and management by Indians. There seems little question that, given a chance, the Indians will make splendid foresters. Living closer to nature than the white man, sympathetic and understanding toward the processes of nature, the Indians, with encouragement and training, should ultimately be able to take over the entire management of their forests and grazing lands and assure their management under the best technique. Equally important is Mr. Collier's plan to have the Indians undertake the work of logging and sawmilling as rapidly as existing timber-sale contracts permit and the Indians demonstrate their capacity for the work. Once the Indian forests are on a full sustained yield basis, operating up to the capacity of their annual growth, it is estimated that they would give the equivalent of year-long employment in reforestation, protection, logging, and sawmilling, to not less than thirty thousand workers and, in the long run, probably more. This in itself would be an enormous step toward the long-sought goal of achieving economic independence and self-support for the Indians.

That the goal of Indian-operated forests is not a rosy dream is clearly shown by the success of the Menominee Indians in operating their own extensive and valuable forest property. With a large, modern electrically-driven sawmill, with modern logging equipment, with most of the supervisory positions, as well as the manual work, in the hands of Indians, this operation has practically made the Menominees economically independent and has placed them far above the system of doles and rations which, as a substitute for self-support, has had such a bad effect on so many of our Indians.



FIELD AND FOREST FOR BOYS AND GIRLS

HOME-LIFE IN BIRDLAND

By JOHN HARVEY FURBAY, Ph. D.

Illustrated by William D. Vennard

AS soon as the nest is completed, most birds begin laying their eggs. The first one is usually laid the next day after the finishing touches have been put on the nest. Then one egg is laid each day, and at about the same time of the day, with most birds. Hawks, Owls, and Geese, lay one every two days.

The real home-life of birds begins when the incubation of the eggs starts, and continues until the young are able to take care of themselves. It is during this period that much of our information about the habits of birds has been gathered. There is less probability of frightening the birds away from their nests then, and one can approach much closer. Incubation of the eggs does not usually begin until all of the eggs have been laid. This makes all of the eggs hatch at about the same time though there are exceptional birds which start incubation when the first egg is laid. This accounts for the "step-ladder" effect sometimes seen in a bird family.

As the time for incubation draws near, the bare part of the bird's breast becomes quite warm from an abundant blood-supply, and this area of the breast is then called the "brood spot." The bird now becomes "broody" like a "setting hen," and her greatest desire is to sit upon the eggs in the nest. Such birds as Ducks and Geese which have no bare spot, pull out the down-feathers from their breasts in order to bring the eggs as close to their skins as possible. This down also protects the eggs from chilling when the birds leave the nests for food.

What does the male do during those long, quiet days when his mate is sitting upon the eggs? Does he fly away and enjoy a good time until the children arrive at his home? Does he ever assist in the incubating? Does he help in any other way? These are

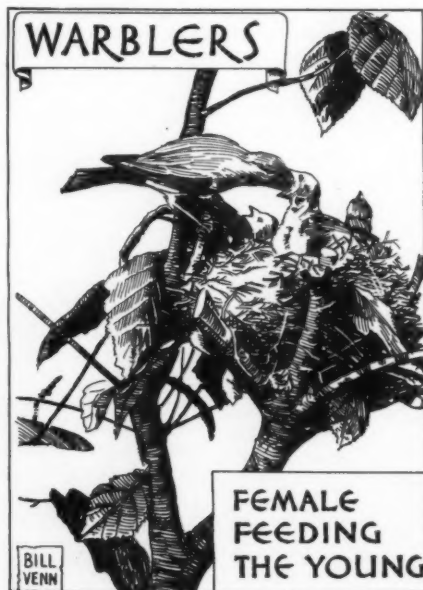
questions which naturally come to our minds. The male and female seem to be bound by a strong tie during this period. There are very few "divorces," and mates seldom part at this time. Some exceptions to this have been noted, however, particularly with Chickadees, which may change mates several times before the young are grown.

The male usually remains close at hand, ready to defend his mate. Some bring food regularly to the female while she is on the nest, and others stand guard on the edge of the nest while the female goes after her own food. If the male brings the meals, the female usually meets

him near the nest, in response to his call, and takes the food from him. Nests can sometimes be located by listening for this call of the male. The Marsh Hawk's nest is easily found by this procedure.

One of the most interesting cases of the male's care during incubation is found in the African Hornbills. These birds nest in hollow trees, and when the female begins sitting on the eggs, the male fills up the entrance-hole with mud until only the bill of the female can protrude. Daily he brings food to her, and places it in her bill. When the eggs hatch, he brings all of the food for the young in the same manner. The female and the young remain imprisoned in the tree until the young are nearly full-grown. The task of the male is so great that stories are told of his becoming very thin, and sometimes dying of fatigue before the young are grown.

It is a common practice among North American birds for the male to sing to the female while she incubates the eggs. The Indigo Bluebird males are famous for their songs to their nesting mates, and the Wood Thrushes are hardly less ardent in their singing.



The male Rose-breasted Grosbeak stops his singing about nine o'clock every morning and takes the place of the female on the nest for about two or three hours while she feeds and bathes.

Male Doves often brood on the nests alongside their mates. Pairs of birds which are colored alike often share the incubating together or take turns on the nest, but if the male is brighter than the female, he is rarely seen on the nest. The males of Ostriches and some other large tropical birds regularly do all of the incubating, while the males of Humming Birds do not assist their mates at all during this period.

The length of time required for hatching ranges from ten days with the Cowbird, to fifty or sixty days with the Ostrich. The length of time seems to depend somewhat upon the size of the eggs and the body-temperature of the incubating birds. The Humming Bird, however, appears to be an exception to this, for although its eggs are the smallest known, the incubating period is fourteen to fifteen days.

The eggs must be turned every day, and many birds turn them twice daily. This is so they will be heated evenly on all sides, and so that the membranes inside will not stick to the shell and hinder the air from entering. Some birds turn the eggs with their bills, and others with their feet. They are usually turned when the female returns from feeding.

When the eggs hatch, another interesting phase of home-life begins. The young must be fed, protected, and finally taught to fly and make their own way in the world.

Birds exhibit their most domestic traits during the rearing of the young, though some birds have so little home instinct that they will desert their nests in the presence of danger even after the young are hatched. I have known this to happen among Mourning Doves, Hawks, Herons, and Pelicans. On the other hand, the Chickadees are such home-lovers that they can hardly be driven from their nests. They will sometimes permit a person to stroke them while they remain on their

eggs. This has been reported also of some Warblers and Vireos.

Many birds have developed very little parental instinct when the eggs are first hatched. This instinct increases rapidly, however, while the young are being cared for, and reaches its highest point at the time the young are ready to leave the nest.

After the eggs have hatched, the babies are not fed immediately. The time lapsing before the first feeding varies much with different birds. Likewise the method of feeding varies.

Many young are fed first by regurgitation. This means that the parent bird swallows the food; then, when it is partly digested, throws it out into the open mouths of the young. Mourning Doves and Goldfinches continue to feed their young in this way till grown, while Herons and Bitterns feed in this way only as long as the young are in the nest. This is the reason no one ever sees these birds returning to their nests with anything in their bills. Most other birds discontinue this method of feeding in a short time. The Waxwings use their crops to carry fruit and insects to their young.

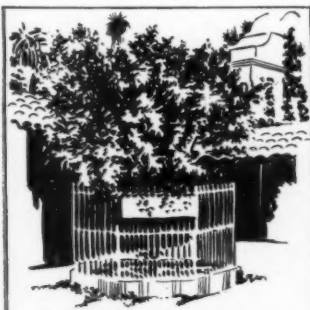
The commonest way of feeding the young, at least after they are a few days old, is for the old bird to carry food in its bill and to drop it into the open bills of the young, as far down in their throats as possible. This keeps live insects from escaping. Pelicans, which feed on fish, allow their young to crawl inside their large mouths and feed there.

Birds usually do not distribute equal amounts of food to each of the young, but feed the hungriest first. Nature has provided a means of preventing over-feeding, and when the baby has had enough, his throat muscles refuse to work any more. If a morsel of food is not promptly swallowed by one baby, it is removed by the parent-bird and given to another of the young.

Most birds continue to feed their young after they have left the nest, and until they are able to fly about and catch their own food. The Swallows teach their young to catch insects on the (Continuing on page 282)

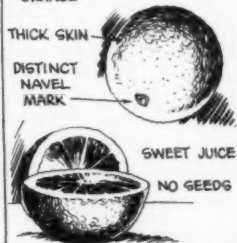
FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW

No. 14 - - "THE PARENT NAVEL ORANGE"



IN THE COURT OF MISSION INN, RIVERSIDE, CALIFORNIA IS THE PARENT NAVEL ORANGE TREE, PROGENITOR OF THE GREAT INDUSTRY WHICH HAS DONE MUCH TO MAKE SOUTHERN CALIFORNIA, FAMOUS

CHARACTERISTICS OF THE NAVEL ORANGE -



THE IMPORTATION OF THE NAVEL ORANGE TREE FROM BAHIA, BRAZIL, PROVED THE MOST VALUABLE FRUIT INTRODUCTION MADE BY THE UNITED STATES—TWO OF THEM WERE SENT TO CALIFORNIA BY THE DEPARTMENT OF AGRICULTURE IN 1874 AND PLANTED IN THE GROVE OF MRS. TIBBETTS AT RIVERSIDE



THE VALUE OF THESE TREES HAVING BEEN SHOWN, ONE WAS TRANSPLANTED FROM MRS. TIBBETTS' GROVE TO THE PATIO OF THE MISSION INN—THE TRANSPLANTING WAS MADE THE OCCASION OF APPROPRIATE CEREMONIES, THEODORE ROOSEVELT, THEN PRESIDENT, PRESIDING—



IN 1920 THIS TABLET WAS ERECTED IN HONOR OF MRS. TIBBETTS, COMMENDING HER FOR HER GOOD WORK IN PLANTING THE TWO TREES—

PIN OAK

Quercus palustris Muenchhausen

PIN OAK is more widely known as a street or ornamental tree than for lumber purposes, but grows naturally from southern Arkansas and north central Mississippi northward to southern New England and New

York. The westward distribution extends to southern Michigan and Wisconsin, eastern Iowa, Kansas and the Oklahoma Ozarks. Pin oak usually occupies poorly-drained flats, low clay ridges, edges of swamps, and occasionally very moist upland sites. One common name, swamp oak, corresponding with the scientific name *palustris*, is derived from the Latin word *palus* meaning swamp. *Quercus* is reported in "Tree Ancestors" by Berry to be derived from the Celtic *quer* or fine, and *cuez* or tree. So it may be said that this is the fine tree of the swamp. The common name, pin oak, may refer to the great number of short, spur or pin-like branchlets on the main branches, or to the remnants of dead branches which extend through the wood to the center of the trunk.

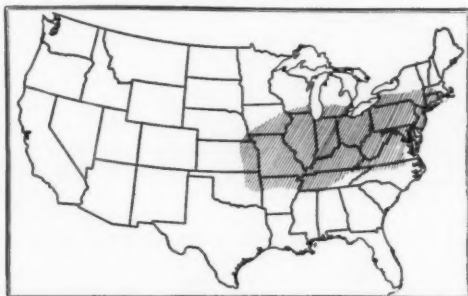
Pin oak is a tree of moderate size, rarely extending eighty-five or ninety-five feet in height, and three feet in diameter. Occasional forest grown specimens reach a height of one hundred



Pin oak develops a single central trunk with relatively small side branches which support a dense crown of glossy green leaves. The same tree shown in winter reveals (lower right), the small, tough side branches.

(Below)

Natural range of pin oak.



and twenty feet, with a trunk four or five feet in diameter. Its straight trunk exceeds well up into a symmetrical, pyramidal crown whose tough drooping branches frequently sweep the ground. With increasing age the crown loses its original pyramidal shape and becomes broad and rather open.

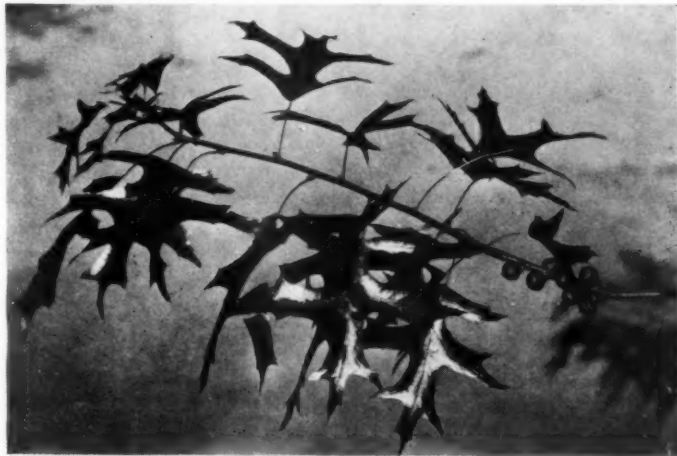
The bark is light to dark grayish-brown, hard, so close as to appear tight, from three-fourths of an inch to one and one-fourth inches thick, and divided by narrow, shallow fissures into broad, low, scaly ridges. The five to nine-lobed narrow leaves are four to eight inches long, thin, firm, dark green and lustrous above, paler beneath, and perfectly smooth except for tufts of pale hairs in the axils of the larger veins. They have slender stems or petioles, one-half of an inch to two inches long, and the irregularly toothed lobes taper to narrow, pointed ends.

Male and female blossoms are borne separately on the new wood of the same tree. The male or staminate flowers appear with the leaves in early spring as brown tassels, while the less conspicuous pistillate flowers may be found at the angle where the new leaf joins with the main stem. The reddish-brown acorns are broader than long and set close on the main stem in flat, saucer-shaped cups. They take two years to mature, and are set singly or in clusters on the two year old branches.

Pin oak has no special commercial importance, but, although generally inferior, is cut and marketed as red oak wherever found in ordinary logging operations. The numerous small adherent limbs cause excessively knotty logs, and the heavy, hard wood checks badly in drying. Accordingly, only the best trees are cut for lumber. It is used for flooring, small fixtures, handles and for other purposes normally filled by red oak, and also for ties, car stock, piling and railroad material.

The upright pyramidal crown, lack of heavy side branches, clean trunk and rich glossy leaves make it one of the most desirable oaks for street and ornamental planting. A fibrous root system without a distinct tap root gives ease and security to transplanting. When planted in well drained moist soils it grows rapidly, produces a dense shade, and with relatively little pruning does not interfere with street traffic. Best results are secured when the trees are planted about forty feet apart.

Aside from attacks by the obscure scale, which resembles the San Jose scale, pin oak is especially free from injury by disease or insects, but fire frequently damages trees growing in the woods or on large estates. The obscure scale can be controlled by spraying with lime-sulphur or miscible-oil solutions in the early spring before the leaves appear and again in midsummer.



The deep-cut, glossy, dark green leaves have five to seven lobes terminating in irregular points. The small, brown acorns are set in shallow, flat cups and mature on wood of the previous year.



Low, scaly ridges and an appearance of tightness help characterize the dark gray bark of mature pin oak trees.



Before the spring leaves have reached full size, the tree is decked with tassels of pollen-bearing staminate flowers. The inconspicuous pistillate flowers are hidden within the axils of the leaves.

AROUND THE STATES

WITH

THE AMERICAN FORESTRY ASSOCIATION



TRANSFER OF FOREST SERVICE THREATENED

BY G. H. COLLINGWOOD

Chief interest in conservation developments on Capitol Hill during May revolved around an apparent effort on the part of certain members of Congress to make the Taylor bill the occasion for effecting a transfer of the Forest Service to the Department of the Interior. That this effort has serious implications is evidenced by the fact that The American Forestry Association, under date of May 9, issued a statement reading as follows:

"The American Forestry Association views with concern an apparent effort on the part of certain members of both Houses of Congress to bring about, if possible, the transfer of the Forest Service from the Department of Agriculture to the Department of the Interior. This effort has become increasingly clear as consideration of the Taylor bill, H. R. 6462, has progressed in both Houses.

"The American Forestry Association is in thorough accord with the Taylor bill which as introduced in the House would empower the Department of the Interior to inaugurate and carry out a conservation program for the public domain. It is emphatically opposed, however, to making the Taylor bill a stepping stone for dismembering the Department of Agriculture by transferring its work relating to tree crops and range livestock to another department.

"As already reported, the Taylor bill has been passed by the House. It is now before the Senate. Senator Ashurst of Arizona has proposed an amendment to the bill to transfer the Forest Service to the Department of the Interior. This proposal, together with other similar views expressed by certain western Senators, adds substance to the purpose sought by Representative Rich of Pennsylvania, who on April 10 when the bill was before the House moved to amend it by inserting the following: 'And that the Forest Service, now in the Department of Agriculture, be transferred to the jurisdiction of the Department of the Interior.' The amendment was rejected, but Representative Rich's argument that such a transfer would prove economical continues in the minds of many Senators as well as Representatives.

"Repeatedly during recent hearings before the Senate Committee on Public Lands the question in one form or another has appeared and the suggestion has been made

that passage of the Taylor bill would be a step toward transferring the Forest Service. Meanwhile, the President continues to have the power to reorganize the government departments as authorized under Title 4 of the Act of March 3, 1933.

"The Taylor bill will probably reach a vote in the Senate within the present month. There are, however, many elements of uncertainty and past experience shows that surprising things may happen in a relatively short time. Accordingly, the Forester's Office

the bill as passed by the House will be recommended. F. A. Silcox, Chief of the Forest Service, was among those who appeared before the committee. He called the committee's attention to two amendments attached to the bill when it was passed by the House. One contained wording that might clearly be interpreted to invest past users of the Public Domain with an easement upon the public lands. Mr. Silcox warned the committee against the enactment of such a clause, because it would defeat the Govern-

ment's effort to bring the public lands under effective regulation and administration. The other suggestion made by Mr. Silcox was that fifty per cent instead of twenty-five per cent of receipts from the use of the range be used for federal administration, improvement and development of grazing ranges.

The hearings closed on May 2, when Chairman Robert Wagner referred the bill back to a Subcommittee of the Senate Committee on Public Lands and Surveys for the preparation of an early report so that the bill may be acted upon before the close of the present Session. The Subcommittee consists of Senators Alva B. Adams, Colorado; Gerald P. Nye, North Dakota; Robert D. Carey and Joseph C. O'Mahoney, Wyoming; and John E. Erickson, Montana.

On April 20 Representative J. Mark Wilcox of Florida announced endorsement by President Roosevelt, of the Fletcher-Wilcox bill for the creation of the Everglades National Park in Florida. At that time Mr. Wilcox gave assurances that the amendment proposed by several national conservation associations, including The American Forestry Association, would be acceptable. This is understood to have been supported by a letter from Secretary Ickes to Chairman Rene L. DeRouen, of the House Committee on Public Lands. The Committee on Rules will be requested by Representative DeRouen and Wilcox for a special rule to bring the Wilcox bill, H. R. 2837, on the floor of the House for discussion before the close of the present session.

Extensive surveys of the pulp wood, pulp and paper industries are now being conducted by the Forest Service in response to Senator Hale's Senate Resolution 205, passed on March 15, under which the Secretary of Agriculture is requested to report on the known pulp and

1934 COMPETITION FOR "BEAUTIFUL PHOTOGRAPHS OF TREES"

Cash prizes amounting to \$225 and Certificate Awards of Excellence will be offered to photographers, both amateur and professional, by The American Forestry Association during 1934 in its second annual Competition for "Beautiful Photographs of Trees."

For the most beautiful photograph, in the estimation of the judges, the Association offers an award of \$100. Second prize will be \$50 and third prize \$25. In addition there will be five Honorable Mention prizes of \$10 each. With the cash prizes the Association will also present its Certificate Award of Excellence.

For the most beautiful photographs of trees in each of the forty-eight states and the District of Columbia, the Association will present its Certificate Award of Excellence.

As in 1933, awards will be based on beauty in photographic effect, utilizing trees singly, in groups, or in mass. There will be no restrictions as to tree species, season, or location, so long as the pictures are made in the continental United States.

The Competition opens June 1 and closes at midnight, December 31. Awards will be made as soon as possible thereafter.

Pictures winning cash awards, Certificate Awards of Excellence, or publication or exhibit recognition in the 1933 Competition will not be eligible for the 1934 awards.

Write the American Forestry Association, 1713 K Street, N. W., Washington, D. C., for further information and Competition rules.

of The American Forestry Association believes that conservation-minded people throughout the country should be aware of present trends."

The Association concluded its statement with an appeal to those who believe a transfer unsound and unwise to protest the proposed action to their representatives in Congress.

In the meantime the Senate Committee on Public Lands has completed hearings on the Taylor bill, H. R. 6462, and as this issue goes to press is preparing its report. Indications are that a number of amendments to

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"During this time I have used 5000 gallons of 27° gravity fuel oil, which cost me \$212.50 at 4¼ cents a gallon, and 150 gallons of lubricating oil, costing me \$96 at 64 cents a gallon. Taking both of the above items into consideration, my cost of operation has been just over 18 cents an hour.

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paper resources and requirements of this country, and whether or not to advance the program of forest conservation that the United States may expect to secure all of its pulp and paper requirements from American forests. The report is expected early in July.

Long-standing efforts to create the Indian forest lands into self-sustaining economic units within each of the several Indian reservations promise to be accomplished as part of the Wheeler-Howard bill, H. R. 7902, now before the House. This bill, embodying basic principles for a new standard of Federal administration of the Indians and their lands, was endorsed by President Roosevelt in a letter to Representative Howard on April 28. Among other things, the bill promises to correct the application of the allotment laws under which the Indians have lost more than two-thirds of their reservation lands, while steadily increasing the costs of Federal administration. The President concluded his letter by saying, "I hope the principles enunciated by the Wheeler-Howard bill will be approved by the present session of Congress."

The addition of 3100 acres within the Chattanooga-Lookout Mountain Park near Chattanooga, Tennessee, is assured the Chamauga-Chattanooga National Park in Tennessee and Georgia by the passage of H. R. 7200. This park area, constituting a beautiful section of the Appalachian Mountain system, rich in military significance, was purchased and improved by a group of public-spirited citizens led by Adolph S. Ochs of the New York Times. Through them it is given to the Government without obligation other than that the maintenance shall be in accordance with the present administration.

Of particular interest to those who desire to have the United States Botanic Garden developed on a more comprehensive plan is H. J. Resolution 327, introduced by Representative Kent E. Keller of Illinois. Growing out of the effort to transfer the Botanic Garden from jurisdiction of the Congressional Library Committees to the Department of Agriculture, has come this proposal to create a planning committee. The duties of the committee include a study of the Botanic Garden in relation to other botanic gardens, arboretums, herbariums, botanic libraries and similar institutions, with a view to improving its scientific, educational and esthetic features of the Botanic Garden and correlating its functions with those of existing Government agencies.

As this goes to press, on May 24, the Everglades National Park Bill passed the House with the amendment to protect and preserve primitive conditions in the area, as approved by The American Forestry Association. The vote stood 223 for and 146 against.

Central States Forestry Congress Meets in Tennessee

Symposiums on soil, water, and wild life conservation through forestry, and an automobile trip to the Norris Dam and the Smoky Mountains National Park, feature the program of the Central States Forestry Congress to be held in Knoxville, Tennessee, May 29, 30, and 31. The meetings will be presided over by Major George L. Berry, President of the Forestry Congress, and will include reports by forest officers from Illinois, Indiana, Iowa, Kentucky, Ohio, Missouri, Michigan, Tennessee, West Virginia, and Wisconsin.

The second day of the program includes discussions of special conservation activities such as the Tennessee Valley Project, forest conservation under the Lumber Code, together with forest conservation by the wood fibre industries and the wood distillation industries. Governor Hill McAlister of Tennessee has accepted an invitation to address the banquet on Wednesday evening, May 30.

Increase of Fire Fighting Funds Assured

Cooperative fire protection funds expended by the states in carrying out the provisions of the Clarke-McNary Act have been assured increases from a supplemental estimate totalling \$600,000. Representative Paul J. Kvale of Minnesota reported in the *Congressional Record* for May 10 that "the Director of the Budget is taking this step because of the fire hazards of a dry spring." On May 21, the Forest Service was authorized to add \$375,000 from impounded funds to the current year's allotment and \$225,000 in the form of a deficiency appropriation to the money available for next year's work. Under such a plan total available funds for the year ending June 30, 1934, will be \$1,565,635 and those for the fiscal year beginning July 1, 1934, will be \$1,573,619.

Reports are also current that \$50,000 may be made available to study needs and means of extending government loans to forest industries, after the manner of the Agricultural Credit Corporation.

Penns Woods Contribute to School Districts

Since 1905 in excess of \$1,400,000 has been paid to the treasurers of school districts and road districts, and to county treasurers in Pennsylvania, by the Department of Forests and Waters in lieu of taxes on State Forest land, according to a statement by Secretary Lewis E. Staley.

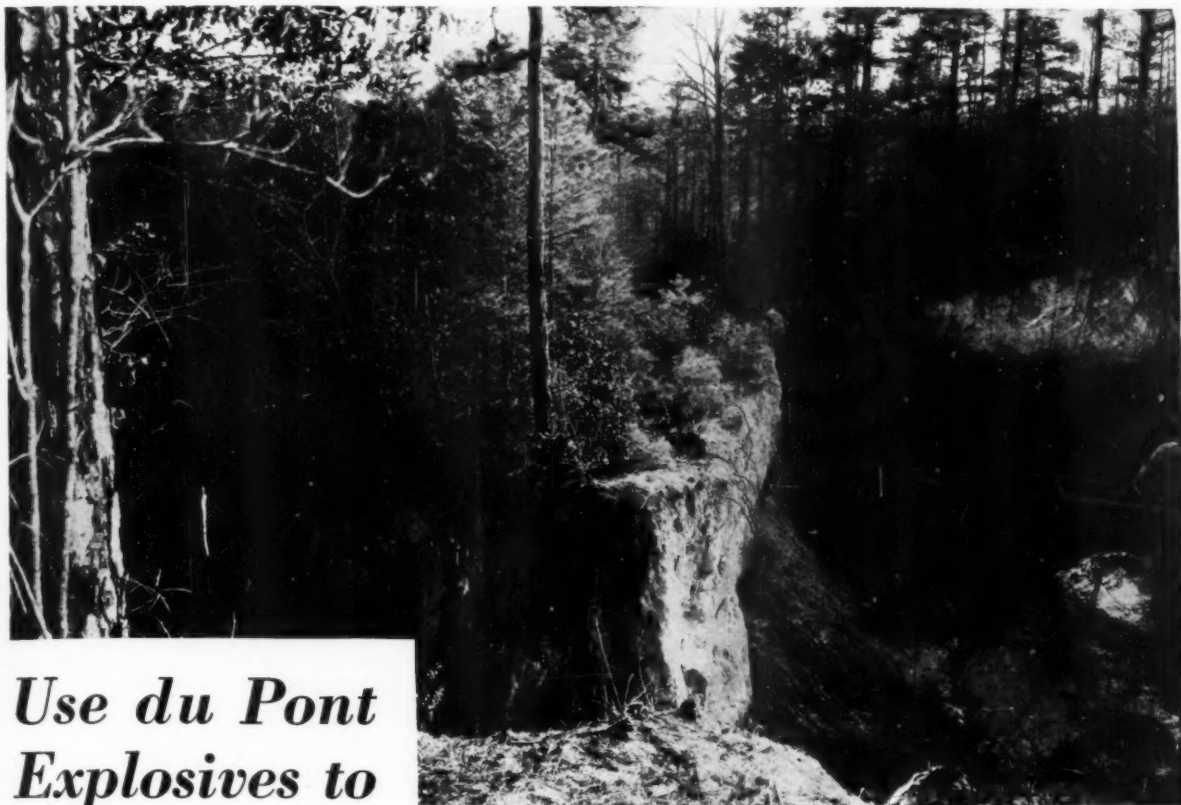
There are now 1,647,882 acres in the Pennsylvania State Forests. According to law, taxes on this land are not paid. However, in lieu of taxes a State law provides that two cents per acre shall be paid annually to school districts, two cents per acre to road districts, and one cent per acre to the county, in those townships and counties where State Forests are located.

The 1934 payment is expected to exceed \$82,000. Potter County with 250,000 acres of State Forest and Clinton County with 231,000 acres receive the largest amounts.

Great Smoky Mountains National Park Nears Completion

The recent purchase of 65,000 acres in North Carolina for the purpose of protecting forest growth and continuing plans for the Great Smoky Mountains National Park brings a total of 394,087.29 acres in government ownership within that area. This purchase, costing approximately \$2,000,000, of which \$506,000 was contributed by the Laura Spellman Rockefeller Foundation and \$1,450,000 with Emergency Conservation Work funds, followed court condemnation judgments for whose fulfillment the State of North Carolina was unprepared. The area was acquired in three major tracts, two of about 32,000 acres each from the Suncrest Lumber Company and the Ravensford Lumber Company, and a third of about 1,000 acres within the right-of-way of the Appalachian Railway Company.

The State of Tennessee now has about 16,000 acres additional which will soon be ready to turn over to the Department of the Interior for park purposes. This will bring the total area within the proposed National Park in excess of the 400,000 acres named in a bill awaiting action in Congress. The original bill provided that the Federal Government would accept title and responsibility for administration of the Great Smoky Mountains National Park when 427,000 acres had been acquired. Under pending legislation the reduction to 400,000 acres should make possible completion of the park during the present year.



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TREES that either have toppled over or are ready to fall because the ground has been washed from under them; leaning saplings that are doomed to early death; exposed roots hanging over deep pits; gullies that deepen and spread with every freshet, thus increasing their areas of destructiveness. The picture is familiar to any one who is informed concerning forest conditions.

Erosion is hardly less alarming than fire as a menace to American forests. While tree-root systems prevent gully erosion, they will not stop large gullies started years ago.

The use of du Pont explosives in filling erosion gullies has important advantages. Banks can be shot down with explosives where it would be difficult to utilize machinery. Such work can be done more quickly by blasting than by any other method. The use of explosives is also the most economical way to fill deep erosion gullies.

Always Build Check Dams

When gullies are to be filled to stop erosion, check dams should first be built above or

below the points at which the filling is done. These dams prevent filled-in materials from being washed away before trees and shrubbery can take root again. They also help to make the filling permanent, so that erosion cannot continue.

Engineering reports from C.C.C. camps assigned to erosion control emphasize the advantages of the use of du Pont explosives in such work. These reports, together with directions for blasting, will be furnished gladly upon request.



EXPLOSIVES DEPARTMENT

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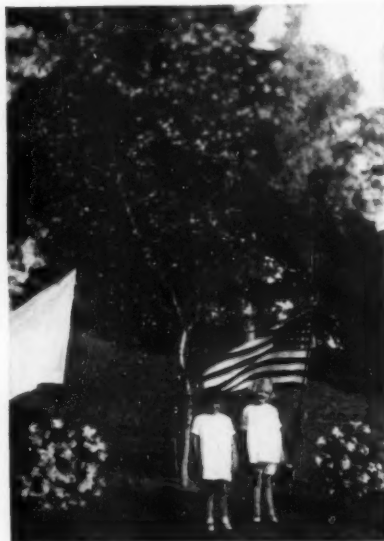
Chalfonte- Haddon Hall

ATLANTIC CITY

Tacoma Marks Mother's Tree

Mother's Day was commemorated in Tacoma, Washington, this year by special services held on May 8 under the auspices of the Girls' Corner Club, of which Mrs. Percy Smith is Director. The main feature of the program was the placing of a marker at the base of Tacoma's Mother's Tree.

This tree, a white birch, was planted in Wright's Park in May, 1929, by the Girls' Corner Club to honor the mothers of the city, and two years later was officially nominated as Tacoma's Mother's Tree by Mayor M. G. Tennent.



The Tacoma Mother's Tree

The marker which was placed at the foot of the tree this year indicates the fact that the tree is the official Mother's Tree of Tacoma and also that it has been registered with The American Forestry Association as such.

The Girls' Corner Club also placed a marker at the base of the Mother's Tree for the State of Washington, which is at Olympia.

Expansion of Gipsy Moth Control Urged

Redoubled efforts by Federal and State authorities to control the gipsy moth and prevent it from crossing the barrier zone extending from Long Island Sound along the Hudson valley to Canada, were urged at a conference of State representatives held in Albany on April 26. Representatives from all the New England States, New York, Pennsylvania, and New Jersey, passed resolutions urging Federal appropriations of \$950,000 for the fiscal year beginning July 1, 1935, for the purpose of controlling and exterminating gipsy moth. Of this, \$400,000 would be used to maintain the barrier zone and continue the isolation of the insect attacks to areas east of the Hudson valley. The remainder would be used to reduce the infestation in the New England States, to eradicate a colony of gipsy moths in Pennsylvania, and to maintain the quarantine against their further spread. During the fiscal year beginning July 1, 1934, \$460,000 is available for these purposes.

The same meeting urged the continuation of adequate appropriations for controlling white pine blister rust, and for control of the Dutch Elm Disease.

Approval of Submarginal Land Program Near

After a winter of much publicity, the \$25,000,000 program for the withdrawal of submarginal farm lands from agriculture is in the hands of President Roosevelt for final approval as this issue goes to press. Expenditures, it is understood, are to be made only by definite projects and each project must provide for the resettlement of families moved from the lands purchased by the government. Occupants of land projected for purchase are to be given an opportunity to approve or disapprove the proposed project.

When lands are purchased by the government, they will be placed under the jurisdiction of those government administrative officers considered best equipped to handle the type of land acquired. For example, areas now being farmed which are better adapted for forest purposes may become part of a National Forest, or if adapted to wild life they may become part of a federal wild life refuge. Similarly, if it can be more economically administered as part of a state forest or park, it may be leased to the state for that purpose, but title to all purchased lands will remain with the United States.

The broad program, it is understood, is patterned after the project now underway in northern Wisconsin, where farmers within the project area of a National Forest are being offered opportunities to exchange their properties for areas in better farming communities. All submarginal land projects, however, must satisfy the Federal Government on the following points:

1. That the project includes land now used for agricultural purposes but which normally does not yield sufficient income to provide reasonably adequate living conditions for the occupants thereof.
2. That there can be a satisfactory public use for acquired land such as for forests, grazing areas, parks, recreation areas, bird or game refuges, soil stabilization, etc.
3. That the settlers now on the land will cooperate, voluntarily, in the necessary resettlement.
4. That the plans for resettlement are adequate in providing new opportunities for the existing residents.

A project may consist of one compact area or it may comprise a number of areas within a given State, in accordance with some general plan, such as a plan for a series of local recreational areas or local forests. Project proposals will be subject to examination and approval by the Submarginal Land Acquisition Committee of the Federal Surplus Relief Corporation, but primary responsibility for detailed consideration and planning of permanent management will rest with the existing public agency mainly concerned—such as the National Park Service for park projects, the Biological Survey for game refuges, the Forest Service for National Forests, etc. No purchases will be made for a purpose not within the scope of activities of an existing public agency, local, state or federal. Where activities of more than one public agency are involved in management of the purchased area, a satisfactory plan of cooperative action will be developed.

Where management of the acquired land properly falls within the scope of some State or local public agency, an agreement may be entered into under which the management of the land will be vested in such agency, conditioned upon compliance with certain standard requirements.

The funds which have been allocated by the Public Works Administration will not be expended in the actual purchase of land until the project plans have been completely formulated.

SAPLING SAM RETURNS



C. C. C. On the Air

Station C. O. W.—Mooh! Broadcasting over a network of 635 gas meters and 356 motorcycles. When you hear the swish of the horse's tail it will be just exactly a few winks before twilight by courtesy of the C. C. C. Horse's Neck Harness Company, makers of fine soft saddles that are kind to the end.

Brush your teeth with pine trees twice a day and see your veterinarian twice a year. The Burlap sisters will now sing "Wring out the cook's vest and we'll all have soup."

Station C. O. W. signing off. Mooh!

—The Forest Log.

Foresight

Nature is a wonderful thing! A million years ago she didn't know we were going to wear spectacles, yet look at the way she placed our ears.—Annapolis Log.

Mimic the Skipping Baa-Lamb.—

Spring! When the open road calls.

Spring! When the weather's fine.

Spring! When the country beckons
With songbirds and lowing kine.

Spring! And a million cars out!

Spring! When the motors hum—

So if you go out walking,

Spring when you see them come.

—Judge.

Then Papa Told Him

Billy (at dinner): "Papa, are caterpillars good to eat?"

Papa: "Haven't I taught you better than to mention such things at the table?"

Mama (after a pause): "Why, Billy, why did you ask that question?"

Billy: "I just saw one on Papa's lettuce, but it's gone now!"—American Boy.

Appius Claudius' Cousin

"Hoo Ray! I foun' (hic) a haffa dollar."

"It'sh mine, it'sh got my name on it."

"What'sh your name?"

"E Pluribus Unum."

"Yeah, it'sh yoursh."—The Forest Log.

A husky forest marine was pushing a wheelbarrow upside down. The foreman yelled, "Hey, you! That ain't the way to use a wheelbarrow, turn it over."

"No Siree! Boss, not me, I had it that way before and they filled it with rocks."

—The Forest Log.

Hi Yenny! Ho Yenny!

When Knute Kittleson called at the hospital last week to see his old side kick, Swen Swenson, the nurse told him, "Why, he's getting along fine, he's convalescing now."

"Oh, bane he? Vell, ay ain't ban in no hurry. Ay yust sid down and wait til' he gets troo."—The Forest Log.



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ATLAS

EXPLOSIVES

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Silcox Designates Experimental Forests

Eight experiment forests, all located on National Forest lands, have been designated in widely separated regions of the United States to serve as outdoor laboratories for working out problems of timber growing, watershed protection, and erosion control. Announcement to this effect was made last month by Chief Forester F. A. Silcox. The eight forests were chosen after thorough study by the Forest Service and each area was selected as a type of cover representative of large sections of the National Forests and the private forests of the region. The tracts vary from one thousand to seventeen thousand acres, and they will be maintained and operated by the regional forest and range experiment stations of the Forest Service. Studies will include watershed problems in California and Utah, and forest management and timber growing in the Northwest, the Ozarks and the Southern Pine Belt.

The new experimental forests are as follows: Fernow Experimental Forest, in the Monongahela National Forest, West Virginia, 3,640 acres; Toccoa Experimental Forest, Cherokee National Forest, Georgia, 2,315 acres; Coweeta Experimental Forest, Nantahala National Forest, North Carolina, 4,300 acres; Eastern Lassen Experimental Forest, Lassen National Forest, California, 10,250 acres; Sylamore Experimental Forest, Ozark National Forest, Arkansas, 2,500 acres; Olustee Experimental Forest, Osceola National Forest, Florida, 3,280 acres; San Dimas Experimental Forest, Angeles National Forest, California, 17,163 acres; Wind River Natural Area and Experimental Forest, Columbia National Forest, Washington, 1,180 acres.

New State Park for Georgia

Through the generosity of Cator Woolford, Atlanta, Georgia, a new state park has been established near the mouth of the Altamaha river on the coast of Georgia. It is to be known as San Domingo park from San Domingo Mission, erected by Spaniards about the year 1600, ruins of which are located on the park area. In establishing the park, the Commission of Forestry and Geological Development states that one of the objectives is to create greater interest in 100 years of Georgia history antedating the Battle of Bloody Marsh near Brunswick that brought the area into the possession of the British.

The Spanish Mission and octagonal fortress, made of tabby stone, are to be restored and the area beautified to make the place one of exceptional beauty.

Joy Morton, Former Director, Dies

Joy Morton, founder of the Morton Arboretum at Lisle, Illinois, died at "Thornhill," his Lisle estate, on May 10. Born in Detroit, Michigan, on September 27, 1855, Mr. Morton was the son of J. Sterling Morton who, as Governor of Nebraska, started the nation-wide annual celebration of Arbor Day in 1872.

Known widely as Chairman of the Board of Directors of the Morton Salt Company, his deep interests were in his farm and the four hundred-acre Morton Arboretum, which he founded in 1921 for practical scientific research in the growth and culture of trees and shrubs capable of growing in Illinois. This received his close personal attention during the remainder of his life and is supported by a foundation which assures its continuation.

He had been a member of The American Forestry Association since 1912 and served as Director from 1928 to 1933.

National Park Group Meets

The annual meeting of the National Parks Association was held at the Cosmos Club, Washington, on May 14, and was attended by approximately two hundred leaders in the National Park movement. Speakers included Dr. John Huston Finley, associate editor of the *New York Times*; Dr. John C. Merriam, President of the Carnegie Institution; Dr. Henry Baldwin Ward, Secretary of the American Association for the Advancement of Science; Albert W. Atwood, of the *Saturday Evening Post*; Arno B. Cammerer, Director of the National Park Service, and Robert Sterling Yard, Secretary of the National Parks Association.

At a meeting of the executive board of the association following the opening session, the following were elected to serve as officers during the ensuing year: president, Dr. Cloyd Heck Marvin, President of George Washington University; vice presidents, Nicholas Murray Butler, John Barton Payne, Henry B. Ward, William P. Wharton and David White; treasurer, Joshua Evans, Jr.; executive committee, Dr. Cloyd Heck Marvin, Horace Albright, Albert W. Atwood, Wallace W. Atwood, Morse A. Cartwright, Henry W. deForest, Francis M. Godwin, Caspar W. Hodgson, Robert Marshall, Henry B. Ward, William P. Wharton and Robert Sterling Yard.

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Forestry Questions Submitted to The American Forestry Association, 1713 K St., N. W., Washington, D. C., Will be Answered in this Column. . . . A self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

+ + +

QUESTION: Is the magnolia that is planted on lawns for ornamental purposes the same as the one growing in the forests of south Georgia?—J. A. S., Maryland.

ANSWER: This is probably *Magnolia grandiflora*, native to southern United States, and valued for its beautiful wood useful for veneer, furniture, fixtures and interior finishings.

Other species of magnolia, including the large leaf cucumber tree, (*Magnolia macrophylla*); mountain magnolia (*Magnolia fraseri*); cucumber tree, (*Magnolia acuminata*); umbrella tree (*Magnolia tripetala*); are native to the southern mountains.

Cucumber tree (*Magnolia pyramidata*); cucumber tree (*Magnolia cordata*) and bay (*Magnolia virginiana*) and *Magnolia grandiflora* are native to the southern coastal plains.

QUESTION: I would like to get some information on Ginseng.—A. W., Utah.

ANSWER: The culture and marketing of the fleshy-rooted herbaceous plant known as ginseng, which occurs in shady, well-drained hardwood forests from Maine to Minnesota and southward in the mountains of Georgia and the Carolinas, is described in Farmers' Bulletin No. 1184, available from the United States Department of Agriculture in Washington, D. C.

QUESTION: Will appreciate suggestions regarding ways to control the blue stain which so frequently occurs in freshly cut southern pine logs and lumber.—W. M. S., New Jersey.

ANSWER: This was referred to the Office of Forest Pathology in the United States Department of Agriculture, which suggests a mercurial compound, namely lignasan, manufactured by the DuPont deNemours Company of Wilmington, Del., which has come into wide use as a number of the Southern mills particularly for stain control on such species as the southern yellow pines and the more susceptible hardwoods. This compound contains 5% of ethyl mercury chloride and 95% inerts, principally alkaline materials. It is recommended for use at the rate of 1 pound of the total material in 40 to 50 gallons of water or in other words, about 1/20th of a pound of the mercury ingredient for the 40 or 50 gallons of water. So far as is known there have been no reports of serious injury to workmen coming into contact with the treated lumber.



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Conservation Calendar in Congress

Published monthly while Congress is in session as a service to the members of The American Forestry Association. This Calendar contains bills introduced at the Second Session of the Seventy-third Congress from April 10 to May 18 inclusive. Whenever acted upon, previously listed bills are described in the Calendar; otherwise they may be considered as in the same status as when last printed.

BILLS APPROVED

H. R. 7425—WHITE (S. 2795—BORAH)—To include certain lands in the National Forests in Idaho and to establish a Demonstration Forest for the Idaho School of Forestry. Passed House April 5. Passed Senate April 25. Approved April 30. Public Law No. 182.

H. R. 2858—TAYLOR of Colorado—To add certain lands to the Pike National Forest, Colorado. Passed House April 16. Passed Senate April 26. Approved May 3. Public Law No. 194.

H. R. 2862—TAYLOR of Colorado—To add certain lands to Cochetopa National Forest in Colorado. Passed House April 16. Passed Senate April 26. Approved May 3. Public Law No. 195.

H. R. 7793—Authorizing a preliminary examination of the Ogeechee River in Georgia with a view to controlling of floods. Passed House April 16. Passed Senate April 26. Approved, May 4. Public Law No. 206.

S. 3022—STEPHENS—To amend an Act to amend sections 3 and 4 of an Act of Congress for the protection and regulation of the fisheries of Alaska. Passed Senate March 19. Passed House in lieu of H. R. 6175 April 5. Approved April 16. Public Law No. 166.

H. R. 5397—CHAVEZ—To authorize the exchange of the use of certain Government land within the Carlsbad National Park for certain privately owned land therein. Passed House February 7. Passed Senate April 25. Approved, May 4. Public Law No. 202.

H. R. 7200—McREYNOLDS—To provide for addition of certain lands to Chicamauga and Chattanooga National Military Parks in Tennessee and Georgia. Passed House April 5. Passed Senate in lieu of S. 2440 April 25. Approved, May 4. Public Law No. 207.

S. 1983—McNARY—To revise the boundaries of the Fremont National Forest. Approved April 14. Public Law No. 161.

S. 285—STEIWER—An act to add certain lands to Ochoco National Forest, Oregon. Passed Senate May 29, 1933. Passed House May 8, 1934. Approved May 11.

S. 618—LOGAN—Amending the Act establishing Mammoth Cave National Park in Kentucky so as to include twenty thousand acres. Passed Senate April 25. Passed House in lieu of H. R. 4935 May 7. Approved May 14.

S. 1506—STEIWER—To amend United States mining laws applicable to Mount Hood National Forest in Oregon. Passed Senate February 20. Passed House May 7. Approved May 11.

NATIONAL FORESTS

S. 3007—McNARY (H. R. 8697—MOTT)—To authorize extension of authority and addition of public lands to Willamette National Forest in Oregon. Report No. 595. April 4. Passed Senate April 25.

H. R. 9011—HILL of Alabama—To facilitate

purchases of forest lands under Act approved March 1, 1911. Introduced April 9.

S. 2876—HATCH—(H. R. 7975—HOWARD)—To transfer National Forest lands to Zuni Reservation in New Mexico. Passed Senate March 20. House Rept. No. 1368. April 26.

H. R. 9407—HOWARD—To amend an act of March 27, 1928, and Section 4 of an Act of May 31, 1933, enacted to safeguard the interests and welfare of Indians of Taos Pablos, New Mexico, in certain lands within Carson National Forest. Rept. No. 1495. May 4.

S. 8—BORAH—To add certain lands in the Boise National Forest. Passed Senate May 10. Passed House in lieu of H. R. 7927, May 14.

S. 1982—McNARY—To add lands to Mount Hood National Forest in Oregon. Passed Senate February 20. Passed House May 14.

NATIONAL PARKS

H. R. 7360—WEAVER—To establish a minimum area for the Great Smoky Mountains National Park. Report No. 982. March 15. Passed House April 16.

H. R. 9148—DEROUEN—To accept the cession by North Carolina and Tennessee of exclusive jurisdiction over the lands embraced within the Great Smoky Mountains National Park. Introduced April 16. Rept. No. 1400. April 30.

H. R. 9152—DEROUEN—To authorize the transfer of Otter Cliffs Radio Station on Mount Desert Island in Maine as an addition to the Acadia National Park. Rept. No. 1401. April 30.

H. R. 9149—DEROUEN—To accept the cession by Arkansas of exclusive jurisdiction over all lands now or hereafter included within the Hot Springs National Park, Arkansas. Introduced April 16. To Public Lands.

H. R. 9155—DEROUEN—To authorize the acquisition of permanent rights in land for the protection of national parks and national monuments from scenic impairment. Introduced April 16. To Public Lands.

H. R. 9153—DEROUEN—To amend an Act providing for the exercise of sole and exclusive jurisdiction by the United States over the Hawaii National Park in Hawaii. Rept. No. 1402. April 30.

H. R. 9147—DEROUEN—To eliminate certain lands from the Craters of the Moon National Monument, Idaho. Rept. No. 1399. April 30.

S. 3097—RUSSELL—To create a national military park at and in the vicinity of Kenesaw Mountain in Georgia. Introduced March 19. To Public Lands and Surveys.

S. 3331—WHITE—To provide for the creation of the Saint Croix Island National Monument located near the mouth of the Saint Croix River in Maine. Introduced April 10.

H. R. 9258—TAYLOR of Tennessee—To provide for the acquisition by the United States of the Grand Caverns in Knox County, Tennessee. Introduced April 20. To Public Lands.

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- H. R. 9156—LLOYD—To allow land within any United States National Park to be prospectured thereon. Introduced April 16. To Public Lands.
- S. 3416—BYRD—To provide for the establishment of the Richmond National Battlefield Park in Virginia. Introduced April 19. To Public Lands and Surveys.
- H. R. 7982—LEWIS of Maryland—To establish a National Military Park at the battlefield of Monacacy, Maryland. Passed House May 14.
- S. 3310—GLASS—To amend sections 1, 2 and 3 of the Act to provide for the commemoration of the termination of the War between the States at Appomattox Court House, Virginia, and to establish the Appomattox Court House National Historical Park. Introduced April 6. To Public Lands and Surveys.

PUBLIC DOMAIN

- H. R. 6462—TAYLOR of Colorado—To stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range. Passed House April 11 amended.
- S. 2754—WHEELER (H. R. 7976—HOWARD)—To add certain public-domain land in Montana to the Rocky Boy Indian Reservation. Report No. 384. February 28. Passed Senate March 29. Reported in House April 18. Report No. 1272.

WILD LIFE

- S. 3411—MURPHY (H. R. 9181—BIERMANN)—To authorize the acquisition of additional land for the Upper Mississippi River Wild Life and Fish Refuge. Introduced April 19. To Special Committee on Conservation of Wild Life Resources.
- H. R. 8639—DIMOND—To repeal certain laws providing for the protection of sea lions in Alaska waters. Report No. 1301. April 23. Passed House May 7.
- S. 3318—McNARY—To authorize the periodic construction of channels for fishing purposes in the Siltcoos and Takenitch Rivers in Oregon. Introduced April 9. To Commerce.

MISCELLANEOUS

- H. R. 4349—LEA of California—To withdraw certain public lands from settlement and entry for a local park, California. Report No. 985. Passed House April 16.
- H. R. 8494—To authorize the Secretary of the Interior to modify terms of existing contracts for sale of timber on the Quinault Indian Reservation. Report No. 1201. April 11. Passed House May 7.
- H. R. 7759—BOILEAU—To amend the law relating to timber operations on the Menominee Indian Reservation in Wisconsin. Report No. 1330. Passed House May 15.
- H. J. Res. 327—KELLER—Authorizing the appointment of a Planning Committee to study the United States Botanic Garden in comparison with other similar institutions with a view to its improvement. Report No. 1336. April 25.

Prize For Nature Poem Offered

The Chattanooga Writer's Club announces the annual Elberta Clark Walker Memorial prize for a nature poem not exceeding 72 lines; a first prize of \$10.00 for the best poem submitted and two second prizes of \$5.00 each for next best. Submit anonymously, with name and address in sealed envelope. Only one poem to contestant; no manuscripts returned. Closing date, November 1, 1934. Address Anna Mary Moon, 1000 Oak Street, Chattanooga, Tennessee.

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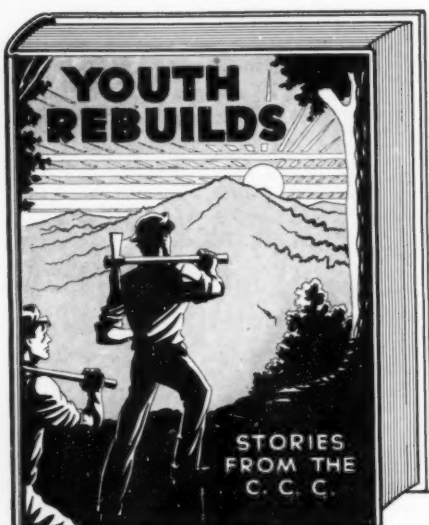
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Move to Clean Up The Connecticut River

The Connecticut River, from the Canadian border to Long Island Sound, will be restored to its pristine beauty instead of being a menace to public health and recreational values if the Connecticut Clean River Council, organized at Springfield, Massachusetts, late in March, succeeds in carrying through its plans. The movement, led by the Springfield Chapter of the Izaak Walton League, has spread to include the States of Massachusetts, Connecticut, New Hampshire and Vermont.

Among the speakers at the first rally were Governor John C. Winant of New Hampshire; General Sanford H. Wadhams, representing Governor Cross of Connecticut; Arthur D. Weston, chief engineer of the Department

of Health of Massachusetts; Joseph T. Woodruff, director of the New England Regional Planning Commission; Kenneth Reid, member of the Pennsylvania Fish Commission; Dr. M. D'Arcy Magee, national vice-president of the Izaak Walton League; S. B. Locke, national conservation director of the Izaak Walton League; and H. C. Delzell, American Waterworks Association.

The discussions brought out the great scenic and recreational values of the river if it were not used as an open sewer by municipalities and industries. The new council embraces all agencies, local, state and regional, and will have the active cooperation of national groups interested in the clean streams movement.

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♦ Book Reviews ♦

THE PROFESSION OF FORESTRY, by Arthur D. Read. Published by The Macmillan Company. 65 pages. Illustrated. Price \$1.25.

Many young people who would be foresters have vague ideas of a life in the open where one fights forest fires, rides the range, plants trees and communes with nature. Few, however, have a definite conception of a forester's real responsibilities or the preparation necessary to meet the requirements. Neither do they know how much he is paid or his opportunities for advancement. They are seldom able to weigh the desirable as well as the burdensome features of a forester's life with similar opportunities offered in the professions of men and women with whom they are more or less in daily contact. In this little book, "The Profession of Forestry," Arthur D. Read presents brief answers to many of these questions.

Salaries of foresters in Government, state and private service are included as is also information regarding the Civilian Conservation Corps. These are followed by lists of state and Federal agencies employing foresters and of colleges and universities giving professional courses in forestry.

A chapter describing qualifications of a forester outlines college studies leading to degrees of Bachelor of Science in Forestry and Master of Forestry and is followed by lists of graduate and undergraduate schools of forestry in the United States.

"The Profession of Forestry," describing as it does the work and ideals behind the profession, promises for several years to serve young men and women who are seeking direction in their choice of a life work. It will also serve the increasing profession of vocational counsellors.—G. H. C.

GAME SURVEY OF THE NORTH CENTRAL STATES, by Aldo Leopold. Available from American Game Association, Investment Building, 15th and K Streets, N. W., Washington, D. C. 299 pages, illustrated. Price \$1.00.

A report of a game survey of the north central states financed by the Sporting Arms and Ammunition Manufacturers Institute and completed in 1933. The book presents detailed information regarding available game of the north central states and suggestions by which the supply may be sustained. It reiterates the seven basic game policy proposals adopted by the American Game conference on December 2, 1930. Chief among these is the one that public ownership and management of game lands be extended as far and as fast as land prices and available funds permit. Also included are recommendations that existing land holders be recognized and compensated as custodians of public game, that further research in game management be conducted and the encouragement of game administration and management as a profession.

Professor Leopold's studies covered the states of Michigan, Iowa, Minnesota, Ohio, Illinois, Indiana, Wisconsin and Missouri, and dealt with existing conditions of bob white, rabbits, ring-necked pheasant, Hungarian partridge, ruffed grouse, prairie chicken and such larger game as wild turkey and white-tailed deer.

The report is already having a helpful influence on game administration as it centers around farm owned land in the north central states as well as in many other regions of the country.

G. H. C.

Reforestation Assumes Extensive Proportions

With the advance of spring forest planting on a large scale has steadily moved northward in a program that may make 1934 a record year from the standpoint of area reforested. Through impetus provided by the C. C. C. and other emergency projects the year unquestionably will record one of the most extensive tree planting programs in the history of the United States. The reforestation work began in the South in mid-winter and has gradually been moving northward, reaching its peak during May and June in high altitudes of Colorado and northern states.

Restoration of denuded forest lands for timber production is the principal objective of planting on many National Forests, although protection of watersheds is paramount in most of the eastern National Forests and in some sections of the western forests. Water protection and erosion control are likewise a primary consideration in much of the planting on state and private lands. Badly eroded lands in seven Central states will be benefited by the spring planting of over 26,000,000 trees this year, largely by the C. C. C. The species most largely used is the black locust. According to Forest Service reports to Robert Fechner, Director of the Emergency Conservation Work, Indiana is planting 15,000,000 locust trees; Illinois, 2,000,000; Iowa, 5,000,000; Kentucky, 500,000; Ohio, 1,900,000; Missouri, 500,000; and Tennessee, 1,000,000.

In the Lake States the C. C. C. is expected to plant over 7,000,000 trees during the spring, of which approximately 4,000,000 will be in Michigan, 2,000,000 in Wisconsin; 1,500,000 in Minnesota, and 62,000 in Illinois. The species include Jack pine, white spruce, Norway spruce, Douglas fir, western yellow pine, and Norway pine. The spring planting on some of the Lake States' National Forests includes several cooperative plantations for which "The Girls Reserves" of the Y.W.C.A., the "Catholic Daughters of America," the "American Legion Auxiliary," the "Democratic Women's Clubs of Wisconsin," the "Wisconsin Business and Professional Women's Clubs," and the "Illinois Federation of Women's Clubs" are contributing funds.

The most extensive reforestation projects yet undertaken by the C. C. C. in Pennsylvania have been in progress for the past several weeks. Over 3,000,000 trees are being planted on land within State Forests, the largest number in the Kittanning State Forest in Jefferson County, where more than 1,000,000 trees are being set out. In addition to plantings on State Forests, a quarter-million trees are being planted by C. C. C. labor on State Game lands, and a half-million trees in the Allegheny National Forest in Warren and Forest Counties. Much of the planting stock being used in Pennsylvania has been raised in the State Nurseries from seed collected from trees growing within the State. Foresters at the Pennsylvania Forest Research Institute, at Mont Alto, have found by tests that the Pennsylvania seed gives a higher percentage of germination than seed purchased from outside the State.

In Tennessee and the Gulf States, particularly Mississippi, more than 10,000,000 trees are being planted in connection with soil erosion projects, largely to protect check dams built by C. C. C. workers to stop gullies from eating further into valuable farm lands.

Farm woodland planting and industrial planting will account for additional thousands of acres this year, since many of the States have large planting programs for 1934. Under Clarke-McNary law cooperation between the States and the Forest Service, State nur-

series are prepared to distribute trees at nominal cost to farmers for planting. Trees distributed under the Clarke-McNary Act are not for ornamental use, but for bona fide forest planting, usually in lots of 1,000 or more. The Forest Service nurseries grow trees for planting in National Forests only.

Radio Serves the Forest

Rangers in the National Forests are using portable radio equipment to save time, distance, useless effort, and timber. Radio equipment is particularly helpful in firefighting in which speed of information prepares the way for speed of attack, which is, in turn, the key to forest fire suppression, according to the Forest Service.

Recently representatives of the various forest regions met at the Forest Service radio shop at Vancouver, Washington, for practical instruction in the use of the newest developments in portable radio equipment, including a newly developed portable voice set far superior to the telegraphic sets. Experts at this shop are trying to improve batteries to make them lighter, more reliable, and more powerful. The Forest Service will continue to rely primarily on telephone lines for permanent communication in the forests, but is coming to rely on radio as a supplement and as an effective substitute for temporary uses.

Administrators of two of the large National Forests in Oregon, the Siskiyou and Chelan, have recently submitted reports that give typical instances of the successful use of radio in the forests, and also example of shortcomings. The only complete failure was caused by a defective battery, and the batteries are, in general, the weakest link in this method of communication.

Eastern National Forest Program Again Expanded

New forest purchase units proposing to consolidate within Federal ownership the Appalachian highlands from Virginia to Georgia were added to the National Forest Purchase Program by the National Forest Reservation Commission at its meeting on May 10. The proposed purchases, which have the approval of the Tennessee Valley Authority, extend the areas of the Unaka, Pisgah, Nantahala and Cherokee National Forests and create a new purchase unit on the Clinch River in Virginia to be known as the Clinch. The gross area of these proposed additions is 3,227,000 acres.

The same meeting approved the purchase of 762,186 acres at an average price of \$2.43, the total being \$1,853,560.25. The largest portion of this is in the Lake States where 319,625 acres are approved for purchase at an average cost of \$2.20 an acre, while the highest prices authorized are in New England where 12,193 acres are to be added to the Green Mountain and White Mountain units at a cost of \$11.07 an acre. The Missouri Ozark and Central Mississippi units are increased by 194,098 acres at \$2.30 an acre, the Southern Pine units by 165,704 acres at \$2.27 and Appalachian Mountain units by 69,539 acres at \$2.63. Taken as a whole, these purchases include more merchantable timber than has been approved at any previous meeting of the Commission and bring the total area purchased with the \$20,000,000 allotted by the Executive Order of May 20, 1933, to nearly four million acres. The average price paid for the entire area thus far approved for purchase is about \$2.25 an acre. The total area that has been approved for purchase during the past eleven months exceeds the entire area purchased during the previous twenty-two years of the Commission's existence.

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THE AMERICAN FORESTRY ASSOCIATION

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TREES TO HONOR THE PRESIDENTS

BY ALICE WATTS HOSTETLER

With national flags and state banners flying, and stepping to the smart cadence set by a Boy Scout drum and bugle corps, representatives of chapters of the Daughters of the American Revolution paraded in the National Historical Grove before their President General, Mrs. Russell William Magna, other national officers, and members of the National Nut Tree Planting Council, on April 21. This colorful Arbor Day ceremony marked the presentation of trees from more than fifty national shrines located in various parts of the continent, together with permanent bronze markers for the grove which promises to be one of the national capital's most interesting parks. Half of the states were represented in the Washington ceremony which was one of several which took place in various parts of the country to recognize Arbor Day in Historical Groves established in recent years.

A permanent marker for the Grove, to be placed on a boulder, was presented by the District of Columbia Chapter of the Daughters of the American Revolution, through the Regent Mrs. George M. Grimes, and Mrs.

as the grant of land from a Spanish king to one of the early founders of New Orleans are given living monuments in the Grove.

Linn C. Drake, Scout Executive of the District of Columbia, called the roll of the states and the procession paused as each State delegation made its presentations to Mrs. Magna. Later several hundred members of the Daughters of the American Revolution, Boy Scouts from Washington, Maryland, and Virginia, and guests, assembled before the reviewing stand while Mrs. C. A. Swann Sinclair, President of the Children of the American Revolution, led the Pledge of Allegiance to the Flag. Master John Augustine Washington and Alice Willis Roberts, members of the Virginia Children of the American Revolution, clad in colonial costume, stood with Mrs. Sinclair.

G. H. Collingwood, representing The American Forestry Association, introduced Mrs. Harry K. Corrick, National Vice Chairman of Conservation and Thrift, who had so successfully obtained the trees from shrines for



DEDICATING THE ROOSEVELT TREE IN THE NATIONAL HISTORICAL GROVE

Mrs. Russell William Magna, President General of the Daughters of the American Revolution, assists in the dedication of a tulip tree from the Hyde Park Estate of President Franklin D. Roosevelt.

Carl C. Brown, chairman of conservation.

President Franklin D. Roosevelt received first recognition as Daughters of the American Revolution filed past Mrs. Magna; and Mrs. Robert H. Gibbs, State Regent of New York, presented a marker from the Chancellor Livingston chapter of Rhinebeck for the tree which the President had sent last year from his Hyde Park home to the National Historical Grove. Trees from the homes of twelve other presidents were added to the collection started when the first tree from Mount Vernon was set out two years ago. Washington, Jefferson, William Henry Harrison, Van Buren, Fillmore, Arthur, Johnson, Hayes, Pierce, Theodore Roosevelt, Coolidge, Hoover and Franklin D. Roosevelt are now memorialized by one or more trees from scenes associated with their lives. Events in history going as far back

as the Daughters of the American Revolution. In accepting the gift Mrs. Magna commended Mrs. Corrick for her successful work, and spoke of the symbolism of trees as representing the world-wide significance of the Daughters of the American Revolution. She expressed the hope that local and State chapters of the Daughters of the American Revolution will start similar groves to perpetuate historical events in other parts of the United States. After brief addresses by District of Columbia Scout Commissioner R. A. Van Orsdel and Clarence A. Reed of the Department of Agriculture, who referred to the grove as an outstanding piece of conservation work which should become a model for the country, Mrs. Magna turned the trees and Historical Grove over to the Office of National Capital Parks for care.

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The program closed with a pledge to trees led by the Boy Scouts and by the retiring of the colors as the Boy Scout bugle corps blew "Retreat."

During the ceremony four trees were presented by Vice Presidents General of the Daughters of the American Revolution from famous places. Mrs. Frederick S. Gundrum of California gave a Sequoia from the home of President Hoover; Mrs. Bessie Carroll Higgins of Iowa, a walnut from the birthplace of President Hoover; Mrs. Henry Zoller, Jr., of Maryland, trees from several Maryland shrines, and Mrs. Minnie M. Dilley of Minnesota, a maple and an elm from the home of General Sibley and from Fort Snelling.

Other trees included black walnuts from Waynesboro, Pennsylvania, the home of General Anthony Wayne, from Port Tobacco, Maryland, an old river landing associated with General Washington, and from Arbor Lodge, Nebraska, the home of J. Sterling Morton, founder of Arbor Day. A descendent of the famous Cambridge elm under which Washington took command of the Continental troops was presented by Mrs. James H. Dorsey, Maryland State Chairman of Conservation and Thrift, and an elm from the old Daniel Boone Trail was given by the Kentucky Daughters of the American Revolution.

Daniel Webster was honored with a black walnut from the Webster farm in New Hampshire, a hickory came from Tennessee to signalize the life of John Sevier, first Governor of that State, a pecan from Huntsville, Texas, will remind people that General Sam Houston was president of the Republic of Texas, and Mrs. Eleanor Washington Howard, the

last member of the Washington family to be born at Mt. Vernon, presented a White Oak.

On the previous Saturday, Boy Scouts of New Jersey, the Arlington Chapter of the Daughters of the American Revolution, Girl Scouts, and 4-H Clubs participated in a ceremony in the Lake Mohawk Historical Grove at Sparta, New Jersey. Under the direction of Mr. Harry M. Wildnauer an elaborate program was carried out when five trees were added to the grove established the previous year. Captain Henry Woyton, Harry B. Hollinshed, F. Walter Mueller, and Rev. Edwin S. Ford participated.

The establishment of the Tercentenary Grove on the campus of the University of Maryland, College Park, was, according to Mrs. James H. Dorsey, Chairman of Conservation and Thrift, the most pretentious Daughters of American Revolution Tree Planting program in that state. It honors "a company of about 230 brave souls" who left the shores of Mother England on November 22, 1633, and headed their little vessels across the broad, wintry Atlantic toward the shores of the New World, to found Maryland. Here, on April 6th, a white Birch, the National "Mother's Tree," was planted to honor the mothers of the Founders. It was the gift of Mrs. Eva E. C. Chase, of Riverdale, Maryland, who has consistently and actively worked for years to promote the beautiful custom of the planting of Mother's Trees everywhere.

The Tercentenary Grove will eventually include descendants of the old trees whose lives reach back into and beyond the beginnings of our nation—those "oldest inhabitants"—tongueless witnesses to men and events written indelibly into America's history.

RULES OF FOREST PRACTICE GO INTO EFFECT

Nation-wide plans providing for forest protection, including many necessary steps such as conservation of immature trees and young growth, selective cutting, and ultimately the accomplishment of sustained yield on about 400,000,000 acres of privately owned timberlands, will become effective on June 1. This action is in accordance with Schedule C, developed under Article X of the Lumber Code Authority.

In the absence of hard and fast regulations governing forest practice in the ten forest regions, each of the several organizations of timberland owners agree to keep their forest land growing timber, to prevent serious overcutting of timber resources with consequent loss to the industry, and to improve forest practices as rapidly as possible. This is an industry action for which the several regional organizations will provide a force of foresters to acquaint the operators with their responsibilities and to inspect the holdings and report to the Committees on Conservation. In accomplishing this the Forest Service will maintain the closest cooperation.

Recognizing sustained yield as a means of perpetuating the forest by natural regrowth after cutting as an objective to be desired, each of the several regional associations have adopted rules of forest practice recommending close study of the opportunities in this direction with a view toward early accomplishment of such principles on individual tracts or on groups of tracts. This is further supported by the generally accepted principle that each operator is encouraged to prepare and submit individual forest management plans.

The rules of forest practice which include provisions for restocking the land after cutting show wide variation according to the

regions. They range from silvicultural generalizations to specific instructions covering the number of trees of different sizes to be left on an acre of cut-over land. The Northeastern Lumber Manufacturers' Association declares, "It shall be minimum standard practice to leave trees of desirable species, singly or in groups or blocks, well distributed over the area in such numbers and sizes as to insure restocking. But where satisfactory and well distributed young growth of desirable species is present and can be preserved, or where prompt and satisfactory natural restocking is anticipated, or where immediate planting is feasible and is preferred by the owner, clear cutting of merchantable timber is permissible."

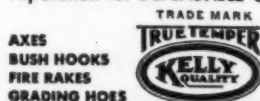
The Southern Pine Division would insure the continuous productivity of forest lands by requiring operators to leave a minimum of one hundred trees to the acre, four to seven inches in diameter, or ten trees eight to eleven inches in diameter, or two to four trees twelve inches and larger in diameter. Similar practice rules are made by the Central Hardwoods Division. The West Coast Logging and Lumber Division provides that, so far as practicable, clear-cut areas should be broken up by strips or patches of uncut timber, while the redwood producers would supplement the vigorous growth of sprouts from redwood stumps by preserving an average of four seed trees twenty inches or more in diameter to every acre.

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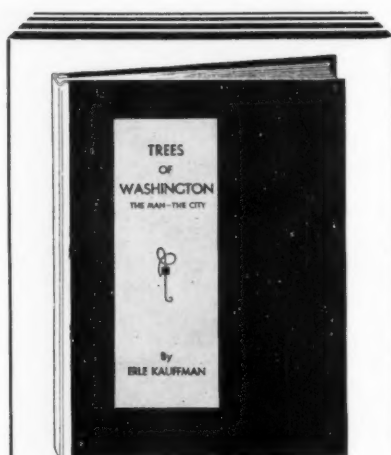


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distribution of live coals and sparks. Telephone communication between the main camps of the woods operations will be required, and provision is to be made for the rapid distribution of warnings concerning the approach of weather conditions conducive to great fire risks. Special regulations concerning smoking in the woods and for the use of fire in any form during such fire weather will be enforced, and all efforts will be made to prevent the starting as well as the spread of fires. Locomotives on lumbering operations will be equipped with special boxes containing shovels, axes and portable hand pumps filled with water for use in emergencies. Logging locomotives will generally also be equipped with power pumps, several hundred feet of one-inch hose and other equipment so that no fires may escape.

All timber operators will be required to dispose of slash and refuse along public highways and railroads in the most practicable way. Similarly, slash near settlements and around school houses must be removed and dangerous snags must be felled. Where desirable, slash, snags, etc., are to be burned during periods of least danger; and in regions of high fire danger, such as in the Idaho white pine area, complete piling and burning of slash is required.

In all regions it is understood that the extent to which these rules may be put into successful operation will be dependent upon the extent to which the public part of the program is carried out.

Young timber in all parts of the country is to be preserved by more careful logging and the use of inferior species for corduroy roads, skidways, car stakes, pry poles, etc., is encouraged. Partial cutting of desirable species to provide a maximum amount of growing stock and to hasten the time of the next cut is encouraged. Planting is held as a last resort, but may be used.

HOME-LIFE IN BIRDLAND

(Continued from page 265)

wing. They fly past their young and drop the food, which the young must catch out of the air.

The amount of food consumed by young birds is astonishing. There is a famous experiment of feeding a young Robin all the earthworms it would eat. The worms were fed one after the other to the robin until it had devoured fourteen feet of earthworms—all the same day. Young Crows will eat their own weight of food in one day. Young birds are not fed great amounts at one time, usually, but are fed often. They digest their food very rapidly, and thus can continue to consume food brought to them from sun-up till sun-down.

There is a great difference among birds as to the amount fed to the young at each trip, and the number of trips in a day. Hawks bring a fresh meal to the nest about once an hour; Humming Birds, every twenty minutes; and Chickadees as often as one trip every minute. House Wrens have been reported making more than seventy trips to the nest with food in one hour, and Rose-breasted Grosbeaks have been found making about forty trips an hour during daylight.

Both the male and the female parents feed the young in most cases. They both make trips back and forth between feeding grounds and the nest. This is one time when the two work together in their home activities. This is a busy period for them, and they both apply themselves diligently to the task of rearing and feeding their family.

Young birds, at hatching, may be either

Tentative rules of forest practice for the several forest areas received by the Lumber Code Authority were studied, correlated and referred back to the several regions for action by a committee consisting of John B. Woods, Director of Conservation for the Lumber Code Authority; William L. Hall of Hot Springs, Arkansas, and C. S. Chapman of Tacoma, Washington, representing the Lumber Industry; and B. F. Heintzleman and E. E. Carter of the Forest Service. Before completion of their work on May 10, Mr. Heintzleman, recently appointed Code Co-operator of the Forest Service, remarked, "The country is going to start off its nationwide practice of forestry under sets of definite rules of forest practice, each based on the conditions in a particular forested region and known to be applicable and enforceable there. These rules should permit the building of a substantial structure." This, he prophesied, in spite of the huge acreage and handicaps of ownership "will be a substantial and pretty fair looking structure at the end of its first ten years."

The industry's administration of the rules of forest practice is being handled in each of the forest regions by Forest Conservation Committees consisting of five to fifteen voting members of the industry, and non-voting members representing the United States Forest Service, with State Foresters and Extension Foresters from each of the States involved. Each Division Committee on Forest Conservation will coordinate the work of the several local or State Committees of Forest Practice to be organized after the manner of the Divisional Committees.

The Executive Officer of the Divisional Committee and of each of the local Committees will in most instances be a forester, who will provide the Committee with technical assistance and represent it in all field work connected with the enforcement of the forest practice rules.

of two types: precocial or altricial. Precocial means that they are wide awake, covered with "down," and, as soon as they dry off, leave the nest and follow the parents in search of food. Examples of this type of young are found in the Ruffed Grouse, Quail, and most other birds that build nests on the ground. Diving and wading water birds usually have young of this type.

The other type of young, called altricial, are almost naked when hatched, do not have their eyes open, and remain in the nest quite helpless for a period. This helpless state lasts a week or two in terrestrial Sparrows, and as long as nearly a year in Condors and the Wandering Albatross. This type of young is characteristic of most arboreal birds (those that build their nests in trees and elevated positions). The young of Flickers, Kingfishers, Woodpeckers, and Cuckoos are good examples of this type of young.

The transformation from a naked bird to a feathered bird is a gradual process, but requires much less time in some young than in others. By the end of the fifth day the "down" of a Red-winged Blackbird has been pushed out by the "pinfeathers" which have grown up through the skin. By the end of the sixth day, the pinfeathers have split their sheaths; and in three more days the feathers have unfolded and covered the entire body. By the eleventh day the young bird is almost fully feathered, and soon will leave the nest to learn to fly. The feathers, however, continue to grow for a long while.

The young of the Cuckoo do not require

such a long time to become feathered. They speed up the process, and reduce the time to only a few hours instead of several days.

Before the young birds have developed feathers to protect them from the cold, they must be brooded frequently by the parents. Altricial young are not brooded after they leave the nest, for they are quite fully feathered before leaving; but the precocial young, which may leave the nest the same hour they hatch, and have only a covering of "down," must be brooded for several weeks while they are growing feathers.

Old birds seldom return to the nest to brood their young, after having left it. They sometimes make new nests for this purpose (as do the Florida Gallinules); but usually the brooding takes place wherever the birds happen to be when they feel the need of it.

An interesting sort of brooding takes place

among Wood Ducks, Grebes, and Swans. They take their young on their backs, and brood them under their wings. The Grebes often carry their young about in this manner, with their wings pressed down tightly over the babies. They will even dive under water with their families thus tucked away, when trying to escape enemies.

The Woodcock is said to carry its young between its legs from place to place; and the Rails often seize their young by the legs, wings or head, and carry them away to safety when in danger.

Young birds often resemble the adult female during the fall and winter, and after moulting the following spring, appear for the first time in the typical dress of the adult male and female. They are then ready to follow the older birds North to the summer breeding grounds, where they will mate, build nests, and rear young of their own.

HISTORY IN THE OLD MULBERRY TREES OF WILLIAMSBURG

(Continued from page 250)

nezer, twenty-five miles away, gave their undivided attention to this industry. It flourished as long as encouragement in various forms was offered, but when prices for raw silk fell and subsidies were withdrawn, it declined.

Swiss settlers in South Carolina were moderately successful in producing silk. At one time these two colonies were called by Parliament the "Silk Colonies." During the eighteenth century, Mrs. Pinckney took to the mother country silk that she had raised in South Carolina and had it woven and made into gowns. One was presented to the Princess Dowager of Wales, one was given to Lord Chesterfield, and the third was kept in the Pinckney family.

The Quakers in Pennsylvania tried their hands at silk production, and according to "A Citizen of Philadelphia," who was sufficiently interested to publish a book on mulberry trees in 1790, there were nurseries containing a half million plants within half a mile of the city. A dress was made for Queen Charlotte of silk that was raised, reeled, and woven in this country. New Jersey was another colony which gave bounties for silk cultivation and during the boom it was said that every family there was feeding worms.

Mulberry and silkworm culture were not confined to the Atlantic seaboard, for later, just before the Civil War, one Californian wrote pamphlets on silk culture and called it "the greatest staple of our state."

After the Revolutionary War the young states hoped to make the silk industry one of profit to the new republic and the system of fines and premiums was carried on in order to promote the planting of mulberry trees. In 1826 the Secretary of the Treasury, at the direction of the Committee on Agriculture, published and distributed a sizable manual on silk culture.

Two years later came what would be called today, in the terms of Wall Street, the "Mulberry Market." It seems unbelievable that mulberry switches sold then for what would be considered important money today. However, there was talk of huge profits, of easy money, of sale at advancing prices before goods was delivered. It was said that the product of fifteen acres of trees would be worth \$32,000. Trees were sold and resold at profit without being moved. The specula-

tion in mulberry trees became so exciting that the use to which they were to be put was not even mentioned.

The record speaks for itself: "On Friday last the steamboat *Alabama* took up to Baltimore 22,000 switches, *Morus multicaulis*, from six to eight feet in length, the value of which, at the lowest calculation cannot be less than \$45,000." There followed the masterful calculation whereby it was estimated that the two million and a quarter eyes or buds on the fabulous switches would be cheap at two or two and a half cents each!

Pennsylvanians thought they had a bonanza a couple of years later when speculation in mulberry trees developed there. One-year-old plants sold for a dollar each, and trees were sold and resold at such a rate that more than a quarter of a million dollars changed hands in one week. A well known company, long identified with the manufacture of silk, sold \$14,000 worth of trees. The speculation collapsed because its very inflation carried it to the bursting point. Overnight, men found themselves with investments that were marketless. Values had been created in talk that did not exist in fact.

According to Chinese historians the mulberry tree was cultivated back in the mythic period, a century before the flood that brought Noah into prominence. Sericulture was so important in 2640 B. C. that a Chinese queen, Si-ling-chi, personally cultivated the worms. Rites became associated with this task. Legend has it that this royal lady invented the loom, and so much importance is given to this invention that altars have been raised to her.

It is believed that India was the next country to possess the secret of silk culture and that a Chinese princess was responsible for their knowledge. She is supposed to have smuggled mulberry seeds and the eggs of the insect in her dress when she went into that country. Historians agree that in the sixth century two monks concealed eggs in their staves and carried them to Constantinople where the world manufacture of silk was begun. It is claimed that those bootlegged silkworms were the daddies of all the races and varieties used in the western world for more than 1,200 years.

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WASHINGTON, D. C.

THE WAR ON WINGED PREDATORS?

(Continued from page 245)

toward the hawk and the owl?

Here, once more, one may turn to the unprejudiced investigators—in many instances scientists employed by the sportsmen themselves—for abundant testimony in favor of these birds. A few hawks and owls are admittedly predatory on game, or other economically valuable species. But as we learn more we damn less. The marsh hawk that has been mercilessly shot on the quail preserves of the South was found by Stoddard in his investigation of the bob-white's economy, to be not only not a liability, but a distinct asset. He called the marsh hawk, because of the large numbers of quail enemies it destroys, "probably the best benefactor the quail has in this area."

As has been said, most of the predatory birds are directly beneficial in their feeding habits. The sharp-shinned and Cooper's hawks are generally recognized, along with a few uncommon species such as the goshawk, to be destructive in their feeding habits. Granted that this destruction takes place, we must not forget that the so-called harmful predators also lend their weight to the biological balance. It must be logically obvious that a Cooper's hawk feeding on, let us say, ruffed grouse, will more easily take the slowest and most stupid birds. It must again be obvious that sick birds—perhaps the carriers of the dread tularemia, fatal alike to grouse and man—will be less able to escape these scourges of the skies. It can scarcely be doubted that even the so-called destructive predators must serve the function of culling out the unfit and raising the physical standards of the creatures on which they feed. Thus, it seems that sportsmen in killing predators are destroying valuable allies.

Most hawks and owls are beneficial to the agriculturist. All hawks and owls are a source of inspiration and pleasure to the non-hunting citizen who seeks the recreation offered by the out-of-doors. Most hawks and

owls do not habitually attack game; those that do, unquestionably act as Nature's sanitary inspectors and keep the game up to snuff. If these points are conceded—and there is vastly more evidence in their favor than there is against them—every species deserves protection unless it is caught in the act of robbing the poultry yard.

If this contention seems too extreme and the sportsman claims the right to kill the birds destructive to game—the sharp-shinned, Cooper's and goshawks—let him remember that not one out of hundreds of his fellow shooters will identify these birds at sight. "Will" is used advisedly; anyone can. It has already been pointed out that most of the "goshawks" turned in for the Pennsylvania bounty were not goshawks.

We are on the threshold of the greatest, most inspiring, effort man has ever made to put wildlife under a long term management plan that will mean perpetuation and not destruction. If the President's Committee on Wildlife Restoration functions as successfully as its agenda indicates it will, we need have no fears for a great many species—including those that bear the brunt of 7,000,000 guns.

The President's Committee should remember, however, that conversationally—if we may coin a word—as well as economically, there has been a Forgotten Man. It should never forget, for a single instant, that among these Forgotten Men few are in more straitened circumstances, few are fighting so desperate a battle for their very lives, as the hawks and owls.

Biologists studying the relations of our wild creatures one to another have not forgotten it. Government agents, computing the vast annual bill we pay for destruction by rodents, have not forgotten it. Non-killing outdoorsmen have not forgotten it.

They are asking the President's Committee one of the most important and pertinent questions it will be called upon to consider: *What about vermin?*

THE SPIRIT OF THE C.C.C.

(Continued from page 257)

of our comfort is a free gift, a heritage from generations that have already endured the trials of pioneering.

But in every state there is still pioneering work to be done. People who travel from city to city notice these so-called waste lands. They see tangled woods, and useless miles, paying little attention,—there is really nothing there to merit attention. And yet much of these areas could be, should be, will be, put to some use, if only to increase the available area whereon more and more people can enjoy in privacy the light of the sun, and the feeling of not having crowds of other people near at hand. The problem of utilizing these waste lands is not in its raw essentials any different from pioneering in the remotest sections of the world.

We have drafted from our midst a large number of young men to whom we have delegated the rough task of pioneering in these wildernesses. There is no practical substitute for a man with an ax. You can use machinery economically for almost any other purpose than that of going before the road builders and even the surveyors, and hewing out an area wherein civilized processes of any kind can later take place. I think it must have been a thought like this, reflecting the spirit of the pioneer, that made our President speak of "recreating our manhood from the ground up."

That sort of work is not easy. It is nor-

mally a job for the young, and not the old men. Woodsmen know that brush work in isolated tangled spots is the hardest form of manual labor, requiring more energy and patience than that with pick and shovel. For not only is there arm and shoulder work, but there is also the added effort of resistance to every step forward. These Civilian Conservation Corps boys have met the challenge of the wilderness in a way that shall do credit to the best pioneering traditions of our nation.

Without indulging in exaggeration, which is not necessary, this group of boys is to be credited with more energy, more bravery, more rugged manhood, in this facing of utterly new, isolated conditions with so little of complaint or trouble of any kind, than most people know. Those of us who work daily with them see that while some few are by various traits unfit, and others are by inheritance grumblers, still the vast majority, as they themselves say, "can take it."

And "take it" they do. They do not work outside on days of heavy rain, but there have been few such days this winter, few days when for any reason, as a matter of fact, they have not been out there in the cold, even in sub-zero weather, among trees, in places the like of which you have never been, never had any occasion to be, during all your life; there they are, pushing forward the marks of civilization, rendering the

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ground on which they tread better ground—ground that you and I can use and enjoy.

During the World War almost every man was proud to wear a uniform. Men were willing to endure the known and measurable hardships of Army life, largely for the public praise and the glamour of organized destruction. This "forestry army," an army of construction, serves without glamour, and in individual cases, largely without praise. The boys feel keenly the lack of public appreciation of their sacrifice, their unselfish efforts.

It is sacrifice. To put aside all comfort, to go away from home and friends to an almost barren waste, that is, barren from a boy's point of view; and there to labor hard, for a recompense to themselves of five dollars a month! It is not normal for boys, pushed off into the wilds (their apt phrase is "in the sticks"), not to want to go to town, and to seek some compensating excitement when they get there. Too often they are met with derision. Too often they are not welcome.

The public attitude generally is that these boys are better off than the average, and

should be content. That too is true, almost too true! If they could have a little, even a very little, of the hero, the pioneer, recognized in them; if they could feel, as they have a right to feel, that they are working for a high and a solid purpose; if their friends would permit them a bit of righteous pride; it would be well.

They will, of course, endure even if no fitting recognition is ever given to their work; but why do we, who celebrate aviators, and explorers, and welcome our blood-stained soldiers with brass bands; why do we, civilized as we doubtless are, fail to see that of all the grand campaigns ever initiated in the name of the U. S. A., this army, dedicated to the purpose of building a new and better land for us all, this Civilian Army, is extending our frontiers as no previous army has done? There is a new spirit afoot in the land. It is the spirit of the C.C.C. Unhonored and unsung, seeking no praise, but giving its utmost, this Army may well be the most striking symbol of a new day in human history.

THE MOVE FOR BETTER FOREST TAXATION

(Continued from page 262)

relationships. To consolidate some and get rid of others would promote economy and genuine local self-government.

Public control of land settlement would also tend to reduce the cost of local government in forest regions. Such control would divert settlement to sound developments and would reduce the number of districts where schools and roads cannot be economically provided.

The complete disorganization of local governments in very sparsely settled forest districts would be desirable. A region of about

ten million acres in northern Maine gets along very well without organized local government. Property in that region enjoys moderate taxes, paid directly to the State. The few residents get the benefit of all essential governmental services which are provided in large part directly by State agencies. The remainder of the State is in the happy position of not being obliged to pay taxes to help support the sparsely settled region, the usual situation in other States where such regions have the ordinary forms of local government.

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The forest districts which are now overburdened with taxes because vital public functions of general concern, such as education, rest too heavily on local support would benefit greatly if the State would assume responsibility for certain functions now supported locally. Not every State would be prepared to go so far as North Carolina and take over the public schools for the minimum term prescribed by its constitution and all the roads in the State as well, but there is a distinct tendency in this direction. Favorable results could also be accomplished in a different manner by an extension of the system, which has grown up in many States, of State aid to local districts for schools and other purposes.

To be sure, reforms of the kind which have just been suggested come slowly. The attainment of efficient government under a democracy is a difficult, uphill task. But there has been a general awakening in recent years to the need for progress along these particular lines. President Roosevelt, while Governor of New York, and other national leaders have brought this question of local government forcibly to public attention. The time is ripe to make a distinct advance. If we want substantial and lasting relief from the heavy burden of taxation on forest lands, we will get farther by cooperating with the organizations which are working for more efficient and less costly local government than by confining our efforts to obtaining special legislation for the sole benefit of forestry.

The Conservation Conference, as already noted, gave serious attention to forest tax reform. It was convinced that Federal leadership is required to bring the importance of the forest tax problem to the attention of the States. It recommended that the President be asked to lay this matter before the governors and impress them with the need for immediate action. The fundamental reforms which the forest tax situation requires were outlined by the Conference as follows:

"1. Reduction of the total burden of taxation on real estate, in part through more economical administration of local governments without, however, curtailing necessary public functions.

"2. Distribution of the burden of taxation with greater equity through improved tax administration, particularly as to methods of assessment and collection.

"3. Adoption of a method of forest taxation which will give appropriate treatment to forest properties the conservative management of which requires a period of income deferment."

The Conference through its Joint Committee gave further consideration to measures for adjusting the burden of the property tax to the deferment of income. This committee was especially impressed with the advantages of the deferred timber tax plan previously mentioned. It proposed that the Federal Government offer assistance to the States in financing this plan or any other plan which might be found more suitable to the conditions in a particular State.

The Conference also recommended "that the President be asked to include in the message to the governors an offer of Federal cooperation through making available the assistance of qualified specialists in presenting the results of the Forest Service study of forest taxation, and in developing legislation applicable to specific States. To meet the demand which this offer would invite, it is essential that provision be made for an adequately financed taxation unit in the Forest Service."

In concluding its recommendations on forest taxation the Conference called attention to the fact "that the measures suggested, while particularly urgent in connection with the conservative management of forest lands, are of fundamental importance to all owners of real property and to the public in general." In taking this broad viewpoint the Conference has pointed the way to real progress toward better forest taxation.

THE NEW DEAL FOR TIMBER CONSTRUCTION

(Continued from page 255)

of the wind. In isolated locations the transportation of sand and gravel for concrete is expensive, and economy requires the smallest footings possible.

In a stiffening truss, there is a reversal of stress in every member to the passage of a load over the bridge. The ring type of truss is of particular advantage as it is equally efficient in transmitting both tension and compression. Both structures were shop fabricated, that is, all timbers cut to length, bolt holes bored, and ring grooves cut in the shop. In addition, the stiffening trusses were assembled in the shop in approximately twenty-four-foot lengths before hauling to the job. For this purpose, the plans were fully detailed showing the exact size and shape of all members and the location of all bolt holes and ring grooves. Each piece was given a

mark to show its location in the finished structure.

This practice has the following advantages: Shop fabrication is done rapidly and very accurately with power tools, eliminating the less accurate laying out and more expensive hand sawing and boring in the field. The shipping weight is a minimum, as all of the waste ends of timbers are eliminated. The erection requires one foreman who can read blue prints, and the labor can be unskilled as all that has to be done in the field is to put each piece in its proper place, insert bolts and tighten nuts. No difficulty was experienced in the erection of either structure, the labor being performed by men employed with both CCC and NIRA funds, who had no previous experience in this class of work.

THE LA CRESCENTA FLOOD

(Continued from page 254)

32,000 cubic yards of erosion debris, brought into the basin by the flood waters at the rate of 67,000 cubic yards per square mile of burned drainage area.

For the comparative erosion rate from unburned watersheds we must turn to the evidence from the San Dimas Experimental Forest. Having a total area of seventeen square miles, and covered with a continuous mantle of chaparral vegetation, San Dimas Creek is typical of unburned watershed. This watershed received during the storm a total rainfall of

10.82 inches (average of sixty-one gages) and yielded peak runoff at the rate of only fifty-one second feet per square mile. Erosion debris transported by this water was practically nil, amounting to only fifty-six cubic yards per square mile. These exceedingly low figures for both runoff and erosion, in comparison with those quoted for the burned Verdugo area, testify that the forest cover functioned powerfully to retard runoff and reduce erosion.

In the San Dimas Experimental Forest,

twenty miles from the flood stricken area, a comprehensive series of studies is under way to determine, under experimental control, the varying influence of different kinds of cover on water movement and soil erosion. Within this Forest six small watersheds, carefully selected for their likeness in topography and vegetation, and varying in size from thirty-five to one hundred acres, have been completely equipped with instruments for all essential measurements. Weirs at the canyon mouths automatically record the streamflow while reservoirs catch the eroded material; recording gages strategically placed measure the rainfall intensity, and, distributed over the watersheds, more than a hundred standard gages serve to secure for each storm the most accurate measure of precipitation ever attempted in a mountain area.

Table II
RUNOFF AND EROSION
from

San Dimas Experimental Forest—Unburned Watersheds
Storm of December 30-31, 1933, and January 1, 1934, California

Watershed	Rainfall for storm in inches	Total area in acres	Runoff Max. cu. ft. per second per sq. mile	Erosion Cu. yards per sq. mile
Bell Canyon No. 3.....	11.8	62	34	62
Fern Canyon No. 1.....	12.6	35	26	65
Fern Canyon No. 2.....	12.7	40	22	19
Fern Canyon No. 3.....	12.6	53	19	24
Average	12.4	48	25	42

The watersheds lie in two groups, three in each group, and the groups are located at average elevations of 3,000 and 5,000 feet. After the rainfall-runoff ratio of each small watershed has been observed for a few years, two basins in each set will be denuded by burning, the third left undisturbed. One basin of each burned pair will be allowed to recover while the other will be reburned as often as necessary to keep it denuded. Incidental

studies of soils, plant succession, transpiration, and other phases of this complex problem will be carried on simultaneously through the life of the project, which is expected to continue for twenty-five or thirty years.

Since the small watersheds are situated within the zone of the New Year storm, their records offer an experimental check upon the flood results discussed above. Four of the watersheds were in proper order for operation and yielded the data presented in Table II.

Despite the possibility of magnifying errors on small units, these figures, obtained under the most careful experimental control, are in striking agreement with the trends in runoff and erosion recorded on the large watersheds of San Dimas Creek and the Arroyo Seco. In similar agreement stands the fact that every-

where, within the New Year storm track, streams carrying the storm waters from forest-covered portions of the mountains, whether draining basins great or small, were observed to issue forth in well-regulated flows quite clear of eroded soil. Perhaps no person who witnessed this storm, and the tremendous contrast in its effect upon burned and unburned watersheds, needs further proof of the function of a forest cover in the protection of life and property against disaster.

HIGHWAYS TO HEALTH

(Continued from page 248)

mountains; grass-carpeted valleys; meadows smothering with bright and redolent flowers; canyons; mirror-like lakes; plunging, mist-spraying cataracts; racing streams; mighty forest giants stretching ever upward;—who can measure, in cold dollars and cents, the soul-building value of these things! It matters not where one goes: the beauties of Nature are surpassingly ubiquitous. And if one is attuned to the symphony of the great out-of-doors, the trees in that fifty-acre tract of one's boyhood or girlhood days are as important in God's far-seeing scheme as those centuries-old titans, for instance, in the Mariposa Big Tree section of Yosemite National Park.

Inasmuch as I am writing this article from the viewpoint of a man who takes a long motor trip every summer, who has repeatedly experienced the thrill of coming back physically refreshed and mentally invigorated, who has seen with his own eyes the tremendous economic significance of this nation's forests, I am going to close by setting down ten important rules of automobile vacationing. If you will abide by them, will test them out thoroughly for their intrinsic worth, you will have the finest time imaginable. The following are the ten spokes in the wheel of vacation pleasure:

1. Before starting out on a trip, avail yourself of all information concerning road conditions, best routes, and what may be expected as to scenic attractions and historic landmarks.
2. The length of the trip should harmonize

as much as possible with the length of the vacation. If your time is limited, don't try to cover too large a territory. Ask the vacationist who has tried it!

3. You aren't out to break speed records, so don't develop a mania for hurrying. There's no sense in abusing your car and burning up your nervous energy at the same time. And after all, "It isn't the 2:10 horse that travels farthest in a day!"

4. Practice SAFETY FIRST at all times. It is a foregone conclusion, of course, that your means of conveyance is mechanically sound. For minor cuts and bruises and burns, always have a complete first-aid kit handy. It pays! The taking out of travel insurance shows business sense and, what is essential from a purely health viewpoint, makes for mental relaxation.

5. Strive for "creature comfort!" This is what the dyed-in-the-wool traveler and camper wants and insists on having. Being primitive does not mean being uncomfortable! Sound sleep is priceless.

6. Choose outing clothes with a view to warmth and lightness. Due to the diversity of climatic conditions, especially in mountainous regions, wool is the best all-round material.

7. Be sure that your water supply is not polluted. If in doubt, boil it! Don't take a chance with the merciless typhoid germ.

8. Keep your camp clean. If you can't be sane, you can be sanitary! Where pits and

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incinerators are not provided, burn or bury all garbage and refuse.

9. Dyskinesia—just plain constipation, if you please!—has a way of attacking tourists. Sitting for hours at a stretch invites this condition. To combat it, eat plenty of coarse food and fruits and camp early so as to have an hour or two before supper, in order that you may limber up with a brisk hike. The result is a decidedly beneficial one.

10. Control your temper. Nobody cares for a grouch. You can disagree without being downright disagreeable! Many a vacation has begun in fine shape only to land upon the rocks, simply because some trivial grievance was permitted to fester. No vacation is perfect. But YOU can help greatly to make it the huge success it should be.

To the ten rules above I shall add a mighty COMMANDMENT: save the forests! Remember that nearly ninety per cent of forest fires are traceable to human carelessness; that one tree can make a million matches, but one match can destroy a million trees; that a tree can be destroyed in less than an hour, but it takes Nature many years to replace it. Trees need us—and we need the trees!

One Million Dollars for Bird Refuge Purchases

One million dollars of Emergency Conservation Work funds were allocated on April 19 by President Roosevelt for the purchase and rental of lands to serve as refuges for migratory birds and for other forms of wild life. The acquisition and development of these refuge lands will provide protection for the depleted wild life resources as well as for the lands themselves, and the work of acquiring and improving the lands will provide a considerable amount of useful employment. Each parcel of land is being examined with consideration to its value as a refuge for one or more kinds of game, the possibilities of developing adequate supplies of food, the existing or potential water supplies, and the price.

Jay N. Darling, Chief of the Bureau of Biological Survey, declared that this action of President Roosevelt offers the first real opportunity to restore to the birds some of the areas that have been taken from them. "Various promotion schemes," he said, "have robbed the birds of more than 17,000,000 acres of nesting areas and homes for the young. Now we shall have a real chance to put some of these lands and marshes back to their proper uses—for the birds. Their restoration, however, is all part of the general movement for the conservation of our natural resources, and it parallels and aids efforts in flood, forest-fire, erosion, and insect-pest control. We can visualize the ultimate success of the plans now forming. The recent passage of the 'Waterfowl Stamp Act' will furnish continuing revenue each year for the new refuge program thus happily inaugurated. The many flyways of the birds will be increasingly dotted with adequate 'travelers' aid' stations, and permanent breeding grounds will be assured. Such practical measures will restore the natural resources that we have wasted."

Pruning Booklet

Three manuals have recently been published which will be of interest to readers of AMERICAN FORESTS. One of these is a discussion of saw tools, another, of files, and the other is an instructive pamphlet of 110 pages entitled "Pruning Book," all published by Henry Disston & Sons, Inc. They may be secured free of charge by writing this company at 369 Tacony, Philadelphia.

WHO'S WHO

Among the Authors in This Issue

WILLIAM VOGT (*The War on Winged Predators?*) is Curator of the Jones Beach State Bird Sanctuary at Wantagh, New York. He was formerly manager and organizer of the Landowners' Mutual Protection, Inc., White Plains, a property-owners group designed to turn private estates into wild life sanctuaries.



Glenn Y. Williamson

GLENN YERK WILLAMSON (*Highways to Health*) is a free-lance writer. A lover of trees, he uses Nature as his main theme in most of his articles and fiction stories. He lives in Peoria, Illinois.

O. J. JOHNSON (*A New Deal for Timber Construction*) is District Ranger in charge of the Clackamas Ranger District of the Mount Hood National Forest, Oregon. He studied at the University of Washington and at Washington State College, majoring in botany and forestry, and has been connected with the Forest Service since 1928.

R. CLIFFORD HALL (*The Move for Better Forest Taxation*) is Assistant Director, Forest Taxation Inquiry, located at New Haven, Connecticut. He graduated in forestry at Yale, and later served on income tax administration as Forest Valuation Engineer in the Treasury Department.



R. Clifford Hall

HAROLD S. FRaine (*The Spirit of the C.C.C.*) is Educational Adviser to the Blue Hills Veteran Camp, at Hilton, Massachusetts. He was formerly supervisor of the Miles Standish State Reservation.



Charles J. Kraebel

CHARLES J. KRAEBEL (*The La Crescenta Flood*) is connected with the California Forest Experiment Station at Berkeley, where he is senior silviculturist in charge of studies in erosion, streamflow and forestation. For three years he was Superintendent of Glacier National Park following his service as Assistant Territorial

Forester in Hawaii. ALICE WATTS HOSTETLER (*History in the Old Mulberry Trees of Williamsburg*) is in charge of the National Nut Tree Planting Program of The American Forestry Association.

JOHN HARVEY FURRAY (*Field and Forest for Boys and Girls*) is Director of Nature Education, College of Emporia, Kansas.

G. H. COLLINGWOOD (*Forestry in Congress*) is Forester for The American Forestry Association.

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